RAILROAD MAGAZINE

MARCH, 25¢

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1st Lieutenant in Signal Corps

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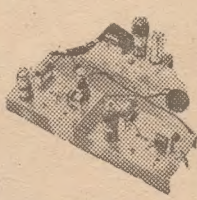

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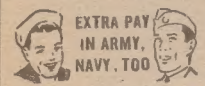

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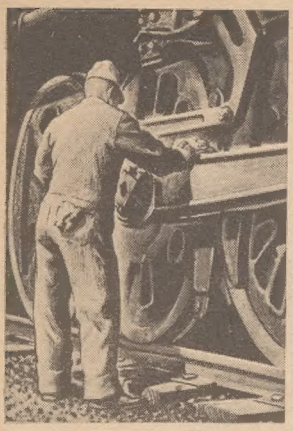

RAILROAD MAGAZINE

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Henry B. Comstock, *Editor* **Freeman H. Hubbard, *Research Editor***

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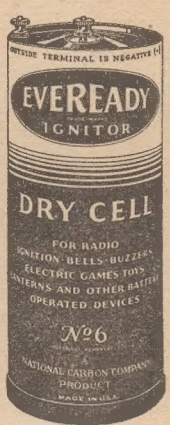
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Less Than Carload Lots

Joe Maurer

WHEN W. E. Eppley, fireman on the Pennsy's westbound *Jeffersonian,* was injured by a passing freight at Trinway, O., last November 21st, J. C. Maurer came forward from the Limited and took his place. Maurer is a ship's cook, first class, U.S. Navy, living at 8100 Manchester Road, Brentwood, Mo. He is familiar with locomotives because he grew up next door to an enginehouse, and wanted to get the *Jeffersonian* moving so as to protect his train connection at St. Louis. Upon being handed a shovel, Maurer quickly proved his ability. He fired the locomotive, a streamlined K-4, for 22 miles to Newark, O., and was relieved by Engineman M. D. Baker, who boarded the train there with the intention of deadheading into Columbus. Later Supt. Joseph S. Gillum, Panhandle Div., thanked the sailor.

* * *

"DEPOT WIVES" are using service men to assure them of train seats, we learn from the *Post-Dispatch,* St. Louis, Mo. You see, at St. Louis union station it has been the custom to permit travelers in uniform to board trains several minutes ahead of the most essential civilians. Recently this wartime courtesy has been extended to the wives of military men traveling with their uniformed husbands.

"You'd be surprised," one gateman chuckled, "just how many men in the armed forces seem to have their wives tagging along. I mean, you'd be surprised unless you knew how many of these happy couples separate the minute they pass through the gate and get a bead on an empty seat."

The traveling soldiers, sailors, marines and coast guardsmen haven't yet picked out a title for the depot brides, but have made the brief acquaintance of many such girls. So if you are a service man visiting St. Louis, don't be upset to find a "wife" unexpectedly hanging on your arm and smiling up into your eyes as you reach the train gate.

SPACE devoted to second vestibules in railway coaches represents about $4000 lost annual revenue per car, estimates Col. E. J. W. Ragsdale, chief engineer of the Edward G. Budd Mfg. Co., Philadelphia. "And for what?" he asks. "There are not enough trainmen these days. Furthermore, why save the passenger an extra minute in getting off the train when he may wait hours to get on it?"

* * *

UNION STATON, Washington, D. C., had 15 ticket windows in regular use before the Japs attacked Pearl Harbor; now there are 59. It had 31 ticket sellers; now there are 133. It had 17 clerks making Pullman and other train reservations; now there are 161. In the same period the number of information clerks has risen from 26 to 121, while ticket revenues have skyrocketed almost fivefold. Before the war, about 50,000 passengers daily moved in and out of the depot; the figure now exceeds 130,000. And the number of trains serving those people has increased from 246 to 325 a day. All in all, the Axis is responsible for an enormous jump in railroad business at our Nation's capital.

* * *

ENGINE BELL. After serving the Norfolk & Western many years, a locomotive bell is now in the Army—at basic training center No. 10, Air Forces Eastern Technical Training command. The old ding-dong had been given to a YMCA children's camp, which the Army took over. It now calls soldiers to religious services and occasionally a wedding.

* * *

EMERGENCY SERVICE. Bursting of a large boiler in a canning factory at Oostburg, Wis., last fall threatened the loss of 40,000 pounds of freshly picked peas. The manager phoned for help. A Chicago & North Western freight locomotive was rushed to the scene and pipes were used to connect her with the cannery plant's cooker. For 18 hours the engine provided steam which saved the peas. Then she went back to her regular job of wheeling freight.

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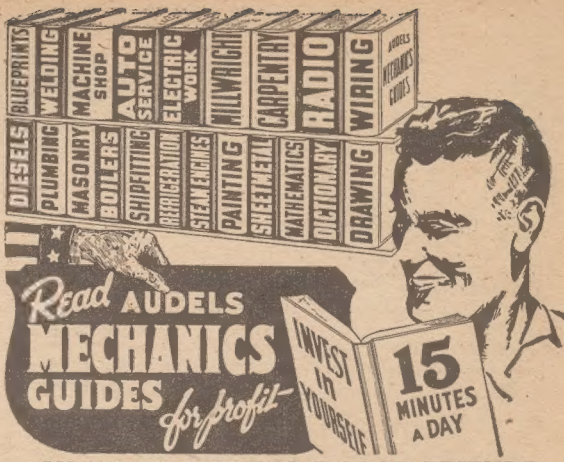

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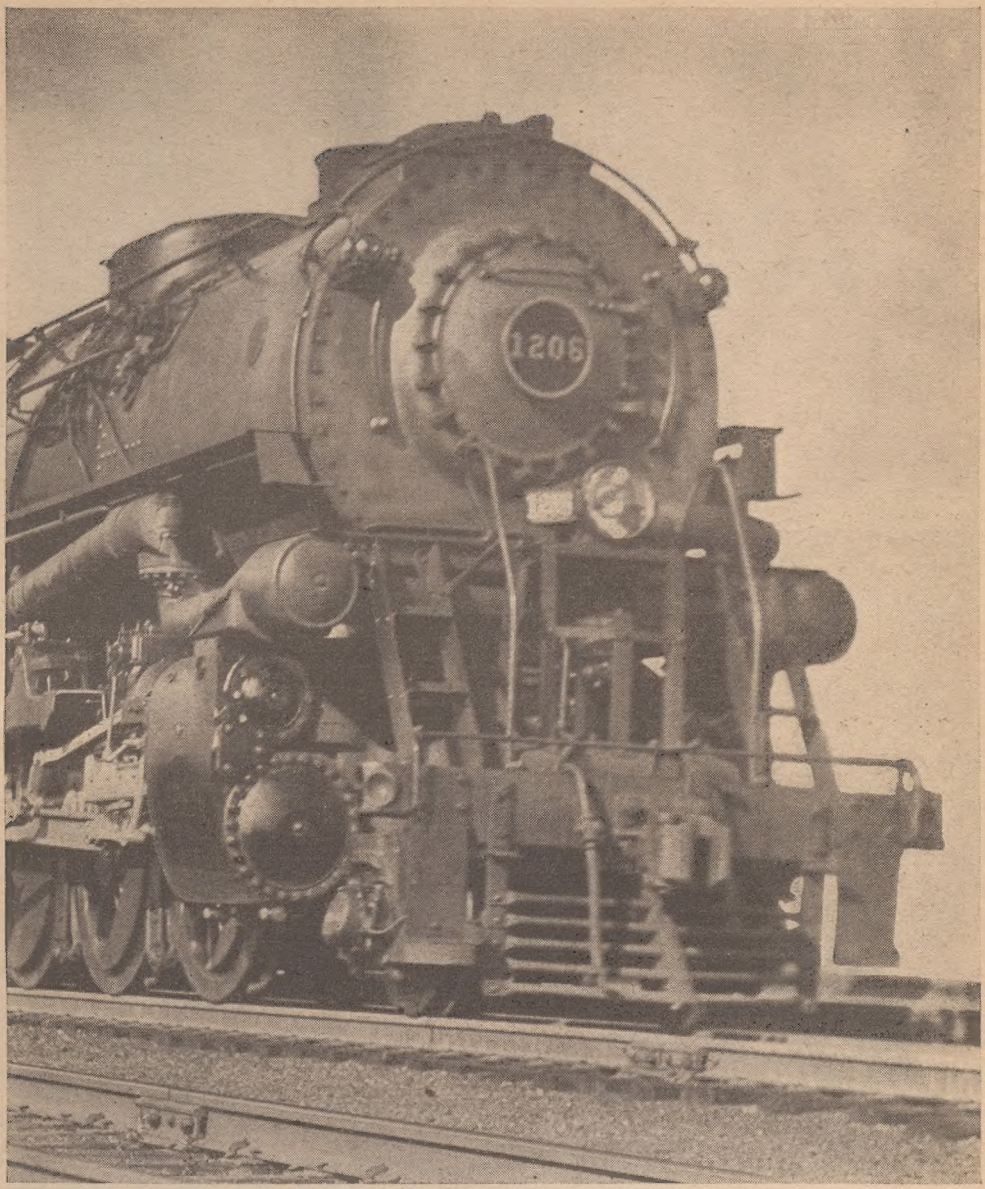
Mallets

The Story of the Articulated Locomotive

Photo from Railroad

THE TIME is 1904; the place, the great Transportation Palace at the St. Louis Exposition. Down at the southwest end of the sprawling structure, with its fifteen acres of exhibit space, including four miles of track for the display of locomotives, palace cars, freight equipment, and high-speed interurbans, is the Pennsylvania Railroad exhibit. Its polished brass railings encircle minutely detailed models of the West Philadelphia yards, the New York terminal, and the twin iron tunnels under construction beneath the Hudson and East rivers, from Bergen Hill, New Jersey, to Long Island City.

But the dioramas are deserted. For beyond them, in the locomotive test-



Photographic Club, 47 Royal St., Allston, Mass.

ing plant, a trim little passenger engine is about to be put through her paces under steam. An expectant crowd presses against the staunchioned cords that hold them back from a special track on which the high-wheeled Atlantic stands.

That mechanical roadway, with its six-foot rollers scientifically braked to record the turning effort of the

By HENRY B. COMSTOCK
Editor, Railroad Magazine

driving wheels above them, is the pride of A. S. Vogt, mechanical engineer of the *Standard Railroad of the World.* Be-derbied and confident, he draws on a pair of light gray gloves, swings into the cab and reaches for the Johnson bar and throttle.

Attendants nod that the lead and

trailer trucks are securely blocked and the voice of the display announcer dies away. He has just concluded a brief description of the engine. This is an eighty-two ton compound of an arrangement that is finding great favor in Continental passenger service. Designed by Alfred DeGlehn and built at Belfort, France, she has been bought by the PRR for experimental purposes.

All eyes are fixed on the eighty-inch drivers as Vogt eases the reverse lever into forward motion and cracks the throttle. Slowly, eccentric motion of an unfamiliar pattern scissors over the main rod, and the first blue-gray exhaust makes its whooshing exit into the smoke jack in the roof. Another whoosh and then another and another as the link nods ever faster. Vogt eases up on the Johnson bar and while steam cascades in compound-talk, the wheels become blurred discs. Yet so slight is the vibration of the engine that dampening devices clamped to the trucks show only a gentle flexing of springs.

A big man with a bulldog face is standing close to the cab, eying the action of the rollers with interest. Vogt sees him at last and leans out of the casement.

"Well, Muhlfeld," he shouts, "here's your locomotive of the future. Trim—speedy—smooth—economical."

The big man shrugs.

"Can she pull more cars than proven engines of the same weight?" he asks pointedly.

Vogt's round face turned crimson.

"Certainly not," he snaps. "But she'll accelerate her train faster and —" with a knowing wink— "she's guaranteed not to roll over on a two-degree curve."

JAMES MUHLFELD, boss of the Baltimore & Ohio's mechanical department, did not miss the implication. Ever since he had put his own engine design on exhibition at the other end of the hall, motive power men had been making dismal prophecies. This time, they said, Muhlfeld had over-reached himself. Disregarding the tendency to refine existing locomotive patterns, he had turned out a revolutionary monstrosity called an articulated compound. Not content with that, he had emphasized his bad judgment by making her larger and heavier than any other engine of her day. A titan of almost unbelievable proportions, she combined two power units, placed in tandem beneath a single mighty boiler.

Nothing like that barrel had ever been seen before. Its center line stood ten feet above the rails and it had a diameter, at the third ring, of eight feet four inches. When water showed in the glass, the member weighed

three-fourths as much as the entire DeGlehn engine—reason enough for twelve driving wheels. Locomotive and tank together measured eighty feet from knuckle to knuckle, and tipped the beam at 479,500 pounds.

Side-stepping historical models of Harpers Ferry, visitors took one look at this behemoth and made for the nearest exit, intent on mailing picture postcards to the home folks. Still the engineers scoffed. Think of the maintenance, they said, not to mention the matter of weight on rails. If the 2400—that was the number of the engine—didn't roll them over with her side thrust, just wait until she hit a curve and that articulated rig went into action.

JAMES E. MUHLFELD
designer of America's first Mallet

By "articulated" they meant the hinging of the entire forward engine unit, to permit so long a locomotive to take sharp curves. Not that articulation was anything new. As early as 1831, Horatio Allen was building his first double-ender for the South Carolina Railroad & Canal Company, and old prints showed that it had used two independent engine beds, placed back to back, with one pair of pony wheels and a set of drivers supporting each assembly. Locomotive Superintendent Robert F. Fairlie, of Ireland's Londonderry & Coleraine Railway, had further elaborated upon the idea in 1866 when he produced the original engine of a type which was to bear his name, for the narrow-gage Festiniog Railway in Wales. After forty years this design was still meeting with indifferent success on mountain roads throughout the world, including Canada and Mexico.

But unlike its predecessors, Muhlfeld's engines did not make use of two symmetrically hinged power trucks. Instead, only the forward unit was flexible, being coupled by means of a slot and knuckle to the front end of the rear engine, which was rigidly attached to the boiler. As a result, the smokebox of the long barrel, along with the center of gravity, would be thrown far to the right or left of track-center whenever the locomotive left a straightaway. Hence Vogt's remark about the two-degree curve.

In several other respects the machine was fundamentally different. These were the placing of the cylinders in tandem, rather than opposed position, and the application of a compounding system which piped the exhaust from the high-pressure or rear cylinders forward through flexible connections to the forward or low-pressure cavities for re-use before exhausting through the stack.

GRAND-DADDY of today's big engines, the Baltimore & Ohio's 2400 was one of the few noble experiments which exceeded her builder's fondest hopes. With her she carried to success the one-hundred-year-old Walschaert gear—proving that invention sometimes precedes necessity

IF EXPERTS had no doubt that the big pusher would soon be cut up for scrap, they were at least curious to know why she was called a Mallet, or "malley." There was a vague understanding that engines of this cylinder arrangement and designation were being used in France and that they bore the name of their designer. But it is safe to say that not a dozen American railroad men could have told you more than that. Nor did the inventor's own countrymen consider him worthy of listing in the *Who's Who* of his homeland.

Records of the French Academy of Science, however, gave his full name as Anatole Mallet, consulting engineer, of 30 Rue Troudaine, Paris. A member of the society, its secretary and publications editor for many years, he had evolved the articulated compound design in 1874, while still in his early forties.

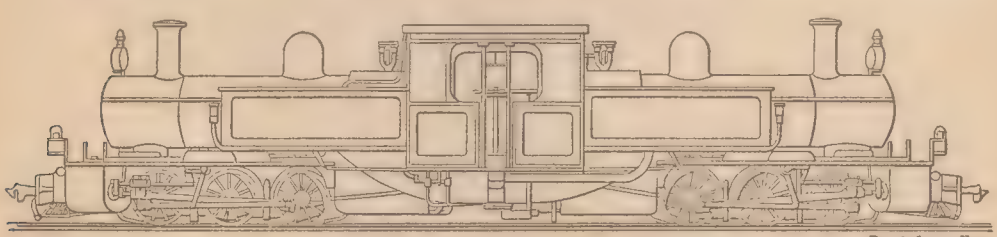
Farthest from Mallet's thoughts at the time was any desire to produce a tonnage mauler like the B&O's 2400. Rather, he had worked out the unusual driving arrangement to meet the requirements of the many small and crooked narrow-gage roads serving the hilly regions of southern France. Even a small engine, for such service, required weight distribution over a considerable number of axles. Flexibility, then, was of prime importance.

The first machine turned out to

TONNAGE MAULER of 1831. Named the *South Carolina*, she was the world's first articulated engine

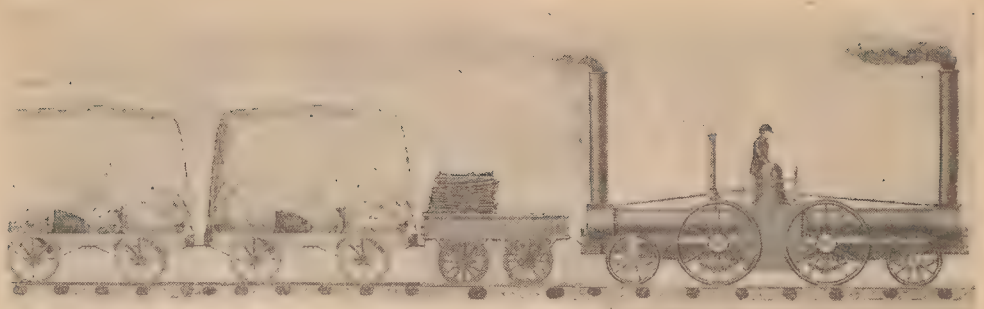
Mallet's specifications was an 0-6-6-0, manufactured by the Creusot Works in 1875 for the tourist-carrying Bayonne & Biarritz Railway. No sooner had it gone into service than an inherent advantage of the design became apparent. For the moment one engine unit lost its feet, the unbalanced power was automatically equalized and its slipping drivers were compelled to get a fresh grip on the rails without loss of energy to the whole locomotive.

It was this capacity to keep moving that was one day to make the "Mallet" the champion mountain climber of the Appalachians, the Rockies, and the High Sierras. But to the perspiring Gascogne engine driver, that advantage was more than offset by the multiplicity of cab controls. Word spread that the engine was overcomplicated and for the next ten years, during which the inventor



Ry. & Loco. Eng.

FAIRLIE double-ender of the type shown above, first suggested to B&O president Leonor Loree the possibilities of hinged power



Print from the Railroadians of America

was occupied with other scientific undertakings, the idea languished.

Then in the early eighties, the Decauville Engineering Works, near Paris, called upon Mallet to design a locomotive for military purposes, to be used on portable trackage. This baby articulated was highly curious in having but one driving wheel to a cylinder. Her extreme flexibility was described many years later by a witness to demonstraiton runs during French war maneuvers. Wrote George L. Fowler, of New York:

"It was the first Mallet I ever saw and so small you could almost jump over it. The possibilities of the machine for light work were apparent in an instant. While I watched it, the engine was hauling a heavy cannon over a roadway that was being laid but a few minutes ahead of it. This was uneven country, and for the benefit of the test, soldiers were building bridges and laying track from material which had been torn up behind the locomotive as it passed. There were, altogether, only a few hundred yards of track but it was laid so rapidly that the Mallet moved faster than I could walk. It was extremely unsteady and the locomotive swayed back and forth over all the grades but either the forward or the rear wheels always kept going."

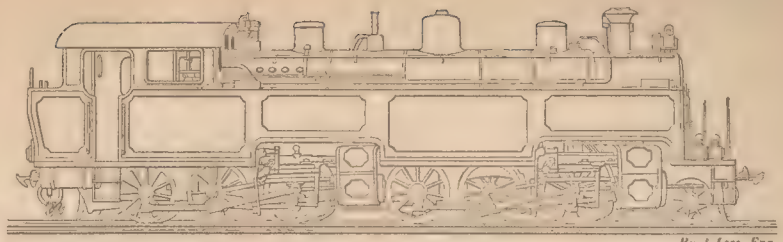
By now Anatole Mallet was convinced that a large articulated compound would be equally adaptable to heavy service. Had he cared to use his position with the Academy of Sciences to publish this belief, it is likely that the railroading world would have taken more note of the design. But Mallet was a modest, almost reticent man, and only a handful of technical publications, unallied with the Academy, carried little articles in which he proudly called attention to the satisfactory performance of the articulated compound, of which about four hundred were finally put in service. Only once did his tone become bitter. That was apparently the result of the invention being miscredited to another motive power man.

In a 1900 copy of *The Railroad,* Mallet undertook once more to explain the reasons for his faith in the machine.

"I produced this type of engine," he wrote, "to furnish railroads a more powerful and economical locomotive than those now in use, without increasing the load on the individual wheels or the resistance of the engine on curves."

He then went on to explain that conventional locomotives had about reached their limit of size and predicted that the railroads would soon be driven to accept his design.

RIGHT: A French articulated compound mountain climber



Ry. & Loco. Eng.

LEFT: Anatole Mallet, who waited forty years to see his engine type gain popularity

ONE year later, hard-hitting, dynamic Leonor F. Loree assumed the presidency of the Baltimore & Ohio. He had just come from the Pennsylvania Lines West, where big engines were the order of the day. The story goes that while on a vacation in Mexico, Loree rode the cab of a Fairlie up a 5 percent grade, and was greatly impressed by her performance. Some time later, he heard about Mallet's hill climber and suggested to Muhlfeld the possibility of designing a similar engine, adapted to American practice. In conjunction with Carl J. Mellin of the American Locomotive Works, plans for the giant were worked out. Schenectady pushed construction through in time for the exposition, but unfortunately there was no opportunity to test the 2400 under actual road conditions. Neither was Vogt's treadmill large enough to take her many wheels, so the skeptics, as we have seen, had a clear board for their pessimism.

All criticism came to an end, however, when the Mallet was deadheaded to Connellsville, Pennsylvania, after the Fair, and put into service, not only as a helper but on through freight runs over the fifteen-mile Sand Patch grade. Before this it had been customary to doublehead heavy Consolidation engines with trains of two thousand tons. The 2400 walked away with three thousand two hundred tons, assisted only on the steepest portion of the grade —six miles of continuous, one-percent climbing. Her running time was one hour and forty-five minutes, during which period she consumed four and one-half tons of coal and forty-six thousand pounds of water.

As amazing as her drawbar pull, was the fact that this radical engine had been so perfectly worked out in

GRATE AREA of 100 square feet necessitated the Mother Hubbard design of the Erie's 2601, the largest engine in the world at the time of her completion in 1907. She had a four-foot combustion chamber and twenty-four-foot flues; carried steam at 215-pound operating pressure, and developed 98,000 pounds starting tractive effort

the blueprint stage that she exhibited none of the "bugs" which are the curse of most experimental engines. Take one example of this foresight. In planning the 2400 it became apparent that clearances were not great enough to allow her two sets of valve motion to be placed between the engine frames. This meant abandoning the almost universal Stephenson reverse gear. Like Mallet, Muhlfeld turned to the Belgian Walschaert arrangement, which could be applied outside the drivers, and had the further advantage, in the case of heavy power, of allowing "lead."

That is to say, steam was made to enter the side of the cylinder toward which the piston was moving a fraction of a second before it reached the end of the stroke, thus tempering the shock of reversal, and starting it back with increased snap.

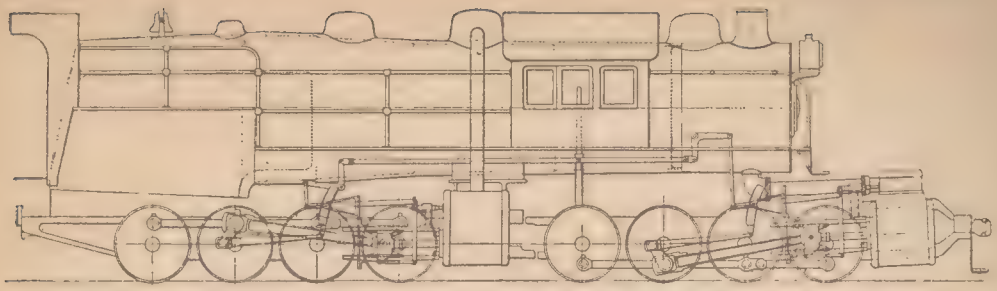
But where Muhlfeld improved upon Mallet was in the design of an air-powered reverse gear which threw both sets of blocks in their links, simultaneously, and with almost identical precision. The difficulty, here, was that the forward engine unit, in turning, materially lengthened or shortened the distance bridged by the auxiliary reach-rod. By using long lifting bars with a compound hinge joint at the top and a ball joint at the bottom, Muhlfeld obtained flexibility and a minimum amount of valve change due to turning.

His answer to those who had predicted that the engine would weave heavily from side to side, if she did not turn over completely, was a spring-centering device located, along with a sliding boiler support, between the front and intermediate driving wheels of the forward engine. A cross-pressure of six and one-half tons was necessary to swing the unit out of alignment with the barrel.

IN THE FINAL ANALYSIS, though, Mallet deserved the credit for the 2400. For it was he who had first understood the particular value of combining articulated action and compounding. In the case of the conventional, rigid-frame engine, the object of venting steam from one cylinder to another for further use was to cut down fuel costs. The same held true of the small Mallet. But in that period preceding the adoption of the automatic stoker, the feedwater heater, and the superheater, an engine as large as the B&O's behemoth would have died for want of steam, had the supply been piped directly to four cylinders for any length of time.

Muhlfeld's engine used high-pressure bores of orthodox design, equipped with piston valves. Their

Photo from the Railroadians of America

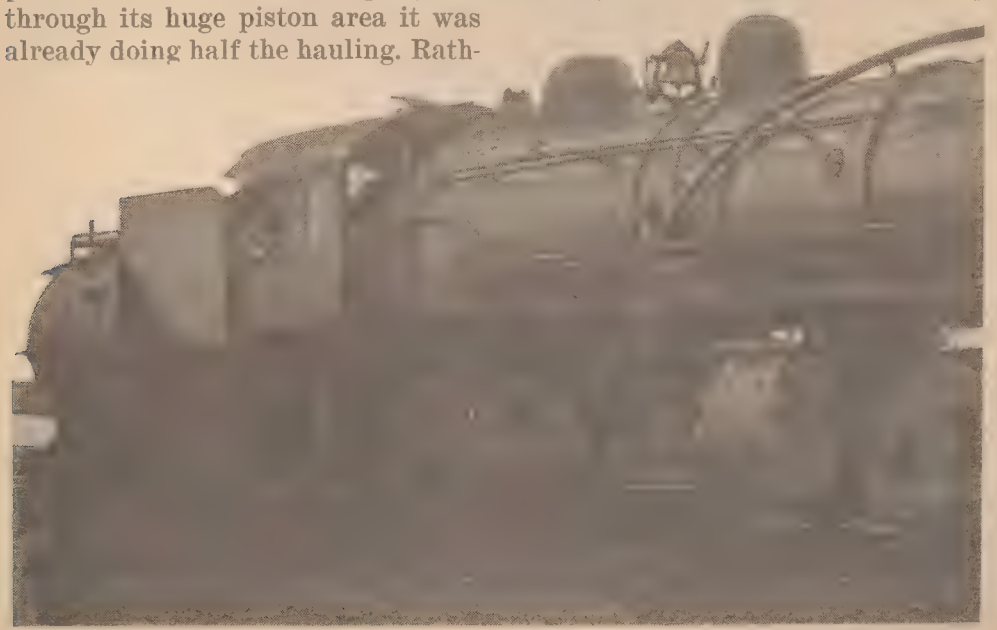


PROFILE DRAWING of the 2601 shows bell crank and long lift rod used to prevent variance of valve cutoff when the forward engine entered a curve

exhaust, in turn, was directed through an intercepting valve to a receiver pipe which led to the forward chests. The cylinders beneath them were of great size, to compensate for the reduced pressure of the steam fed into them.

As for the intercepting valve, its purpose is best understood when we recall that at starting on very heavy grades, it was an advantage to switch the engine over to "simple" operation—that is to say, to send steam directly into all four cylinders. This was done, not as the layman might suppose, to directly increase the power of the forward engine, for through its huge piston area it was already doing half the hauling. Rather, the object was to eliminate the basic curse of compounding: high back-pressure against the cylinders receiving steam directly from the boiler. This contrary force, in the Mallet, amounted to thirty percent of operating pressure. By eliminating it through "simple" running, and at the same time increasing the power of the forward engine proportionately, tractive effort could be boosted twenty percent.

The intercepting valve, then, was a device which, when shut off by the engineer, switched the locomotive to simple operation, automatically preventing steam from backing up



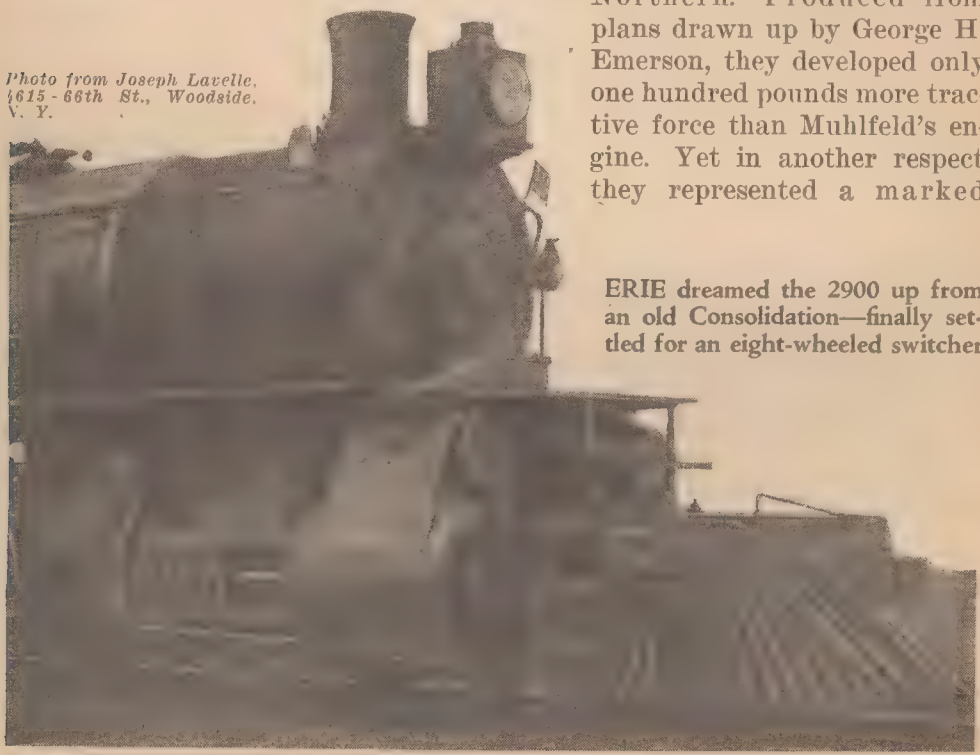
against the high-pressure cylinders and at the same time controlling the pressure of the supply being sent to the forward engine. To discourage running the locomative "simple" for prolonged periods of time, its steam passages were so designed that no advantage was gained, at speeds exceeding four miles per hour.

So much for the mechanics of the first American Mallet. As railroaders will, the men who ran the 2400 lost no time in giving her a nickname, *Old Maud*. Several theories have been offered for its origin but the probability is that she took the moniker from a hard-pulling mule featured in a comic strip of the period. By 1916 the big girl had outlived her usefulness on the Sand Patch grade and was sent to the Chicago Division. Renumbered the 7000, she served in humping service at Willard, Ohio, until 1927, when she was retired to Keyser, West Virginia, for storage. At the time of her scrapping, eleven years later, more than two thousand of her sisters could be found wheeling heavy tonnage, from one end of the nation to the other.

THE DEVELOPMENT of most mechanical devices, if represented graphically, would show a series of plateaus interspersed with sudden upward lunges. In 1904 *Old Maud* had made one of those jumps. Overnight she threw the emphasis of locomotive design upon big power, not only in the articulated field but in the case of conventional engines as well. Whether it was a wise change or not has little to do with this story. The die was cast and drawbar pull became the yardstick of the industry.

Not to be outdone by Alco, the Baldwin Locomotive Works in 1906 outshopped five Mallets for the Great Northern. Produced from plans drawn up by George H. Emerson, they developed only one hundred pounds more tractive force than Muhlfeld's engine. Yet in another respect they represented a marked

Photo from Joseph Lavelle, 1615 - 66th St., Woodside, L. I.



ERIE dreamed the 2900 up from an old Consolidation—finally settled for an eight-wheeled switcher

advance in design. For during her two years of service, *Old Maud* had shown that the true forte of the articulated compound was sustained running under heavy load. In this field her fuel consumption was thirty percent less than that of double-headed engines having the same collective drawbar pull.

The Great Northern machines, then, while intended primarily for pusher service, were equipped with a pony truck and trailer wheels. One year later the line went all out for road locomotives of the same type, though somewhat smaller, putting twenty-five of them in use between Spokane and Leavenworth, Washington, where the ruling grade was one percent.

Both classes of engines differed from *Old Maud* in another, though less important, feature. This was their use of conventional cross-compounding, without an intercepting valve. Instead, there was a small pipe connection from the boiler to the receiver, by means of which live steam could be admitted to the forward cylinders at the discretion of the engineer. In later locomotives, the Philadelphia and Schenectady builders adhered each to its original system of compounding.

Months before the first batch of Great Northern engines was completed, the Erie Railroad stole the show by ordering three Mother Hubbards of the 0-8-8-0 wheel arrangement from Alco. Intended for pusher service on the tortuous Gulf Summit grade, extending eight miles out of Susquehanna, Pennsylvania, to the east, their specifications called for an engine-weight, exclusive of tender, of two hundred and five tons, and a maximum tractive effort of ninety-eight thousand pounds.

To generate steam for the equivalent of two eight-wheeled switchers required a total heating surface of over six thousand square feet, and there was considerable doubt as to whether the flues—each locomotive had nearly two miles of them—would be practical, both as to conductivity and their ability to withstand variations of temperature. For in helper service, where a locomotive frequently remained at work for long periods between fire cleanings, and was forced to the maximum on upgrades, eased off during drifting returns and held idle for hours at a time, the juncture of firebox and tubes was subject to tremendous stresses due to unequal expansion and contraction.

Yet confidence inspired by earlier successes led the distinguished and outspoken engineering critic, Angus

ABOVE: First articulated engine type with a four-wheel leading truck. The Santa Fe built two of these in 1909

RIGHT: Accordion - pleated boiler, applied to a group of Santa Fe 2-6-6-2s. No, the flues weren't hinged

Sinclair, to state before their completion that the operation of such engines would dry up all the canals of the country and defy every mode of water transportation.

What toiling firemen said of the hand bombers as they clanked noisily out of the valley of the Susquehanna and across the graceful succession of stone arches spanning Starruca Creek will never be known, for the hogger was too far away—in his own cab, just ahead of the high-pressure cylinders.

THE RISE in popularity of the Mallet type from 1907 on was so rapid and universal that there would be no point in itemizing orders. Next to the Great Northern, the Northern Pacific quickly became the best customer for this type of power, purchasing sixteen pusher engines of the 2-6-6-2 wheel arrangement from Baldwin.

Ironically enough, the year 1908 found Schenectady building two articulated compounds for the eastern Railway of France! It was fortunate that Monsieur Mallet had a strong constitution—without it he would never have lived to see the triumph of a forty-four year old dream. Belatedly now, the Franklin Institute of Philadelphia presented him the Elliot Cresson medal—a hollow award, for his patents had long since expired and not a penny of the profits reaped by American builders of this engine type reverted to the man who's name it bore. The Eastern Railway machines were 2-6-6-0s, a classification which had its introduction to American practice one year later, when Alco built several such

machines for the Virginian. Designed for use as pushers on the 2.7 percent Clarke's Gap grade, they were so successful that in 1910, Baldwin prepared erecting cards for the 600; a mighty 2-8-8-2 type, guaranteed to haul twenty freight cars weighing twenty-eight tons apiece, together with a caboose, up the same fourteen-mile hill.

She was not the first sixteen-drivered road engine to be equipped with leading and trailer trucks, however. For in 1909, both the Santa Fe and the Southern Pacific had ordered such power. The Santa Fe machines, numbered 1700 and 1701, ranked as the largest Mallets in the world at the time of their completion. They weighed over two hundred and thirty-one tons apiece, without tender, of which two hundred and six tons rested on the drivers.

Meanwhile, developments were taking other turns. The Philadelphia builders had outshopped an oil-burning Mallet as early as 1908, for the Mexican Central. This engine—the road's 600—was further unique in having its headlight mounted on the leading engine, rather than the smokebox front. The object was to permit its beam to follow the rails more closely when the locomotive turned. Regarded with skepticism by many motive power men, who felt that a low position would shorten its power of projection, it nevertheless proved so successful that road after road followed suit.

Out in Colorado, the Denver, Northwestern & Pacific, better known as the Moffat Route, found a new use for the articulated compound—bucking snow. Prior to the delivery of an Alco-built machine which greatly resembled *Old Maud*, the policy had been to handle rotaries with five Consolidation engines. The Mallet did the same job with one helper, eliminating the difficulty of coordinating starts and stops. Her non-slipping feature was particularly useful in this field.

FUNDAMENTALLY, though, the truly big Mallet awaited improvements in boiler design. Without a dependable automatic stoker, grate areas were limited and roads began to experiment with feedwater heaters capable of raising the temperature of cold water coming from the tender before it was passed into the boiler proper, thus speeding the rate of evaporation. Around 1910, there was an epidemic of converting conventional engines (mostly Consolidations relieved from other runs by Mallet power) into articulated compounds. In doing this, the smokebox

VIRGINIAN's 2-10-10-2s, which couldn't meet the clearances of delivering roads, were shipped south with cabs and cylinders removed

CANADIAN PACIFIC built the only articulated engines ever to operate in the Maple Leaf Dominion. Cylinders were placed back to back to shorten steam passages, reducing losses through condensation

or forward section of the old boiler was removed and a new and longer course applied. It carried no extension of the flues, but, instead, a drum or drums through which water, delivered from the tank, was directed to the injectors. Firebox gasses, rushing forward to the stack, gave this feedwater a temperature of around two hundred degrees.

Among the roads experimenting with such hybrids were the Santa Fe, the Great Northern, the Baltimore & Ohio and the Erie. The last-named carrier produced a 2-6-8-0 whose principal claim to glory seems to have been that she made a good pusher engine at speeds of up to two miles per hour. Her real undoing, though, was a variance of temperature between the closed and open sections of the boiler. This produced electrolysis to such an extent that the entire feedwater heater collapsed after a short period of doubtful service. Once more, then, she was cut apart, and the original section, now an 0-8-0, ended her days as a conventional switcher.

But it was the Sante Fe which produced the strangest Mallets of the day. Contrary to a general impression that the Union Pacific's *Challenger* type was the first hinged engine to embody a four-wheeled leading truck, the fact is that the AT&SF was hauling passenger trains with a brace of 4-4-6-2s in 1909. Baldwin jobs, they carried road numbers 1300 and 1301 at their time of building, weighed one hundred and eighty-eight tons, and had

Photos by Wm. Pennington, Jr.; R. P. Middlebrook; and Harold Miller

EVOLUTION of an engine type. Top: Number 4000 as she was delivered to the Southern Pacific in 1909 (photo taken at Gold Run, Calif.). Center: The same engine, after remodeling of her pilot and a change of headlight placement influenced by Mexican Central practice (Colton, Calif.). Bottom: One of fifteen sister engines designed for cab-in-front operation

seventy-three-inch drivers—the highest ever applied to an articulated engine. After six repair-crowded years, these behemoths were whittled down to conventional Pacifics.

The flower and fruit of Santa Fe enterprise, however, appeared in 1910. This was a 2-6-6-2 with a hinged boiler. Fifty rings of high carbon steel, each seventy-five and one-half inches in diameter and ten inches wide, were riveted together alternately on their outer and inner edges to form a huge bellows connecting the closed barrel section containing the flues, and an open feedwater course. An engine frame was bolted rigidly to each unit, eliminating all but one flexible steam-pipe connection, a coupling which joined the high-pressure cylinders with the receiving pipe. The idea looked good on paper, but cinders had a way of slipping into the metallic folds of the bellows, and bursting them on curves. Both internal sleeves and ball-and-socket joints were tried on six later engines, but without conspicuous success.

HOWARD STILLMAN
father of the cab-in-fronter

Then in 1913, the road made its last articulated spludge, converting ten Santa Fe types into 2-10-10-2s at its Topeka, Kansas, shops. For them Baldwin built a special design of twelve-wheeled turtle-back tender, as well as the forward, low-pressure engines. The weight of these monsters—308 tons without tank—and their tractive effort of 111,600 pounds, made them by far the largest locomotives of their day. Yet they remained in service barely four years being reconverted into 2-10-2s.

SOUNDER, if less conspicuous developments, were under way on other roads. Southern lines were beginning to cotton to articulated power. The Frisco, in 1910-11, produced the first Mallets with inside steam pipes to the high-pressure cylinders. Passing from the dome through a combustion chamber ahead of the flues, they had the dual advantage of holding steam at a more uniform temperature, and improving the engineer's view ahead. Of the seven engines, six were equipped with Street stokers—a pioneer application of the iron fireman to articulated power.

It was becoming general practice, too, to use superheaters of one form or another. These coils, subjected (like the feedwater heater) to gasses passing through the smokebox, materially raised the temperature of steam on its way from the dome to the cylinders.

The Canadian Pacific, which sponsored the Schmidt and Vaughn-Horsey designs, was quick to see the special advantage of superheating articulated power, with its long, condensation-forming delivery pipes. In 1909 the road built a dry-steaming 0-6-6-0 in its Montreal shops.

Two other roads, the Chesapeake & Ohio and the Chicago, Milwaukee & St. Paul, were at this time placing orders for 2-6-6-2s equipped with reheaters located between the high-and-low-pressure cylinders. But the CPR went them one better. By arranging the two engine units back to back, its designers reduced the length of steam connections to a minimum.

Had this locomotive developed a tractive effort in proportion to construction and maintenance costs, she and five sister machines built two years later would have attracted world-wide attention. But their mediocre performance on the "Big Hill" out of Field, British Columbia, led to their being converted into Decapods in 1916. Further, it beclouded a most important fact; namely: that the last of the series was originally constructed with four high-pressure cylinders, thus earning the title of America's first simple articulated engine. As we will see directly, this marked the dawn of a new era in hinged engine design.

NOW, let's have a look at two of the strangest locomotive types ever to roll out of a roundhouse. To see one of them in action, we must pay a visit to the Overland Route of the

SOUTHERN PACIFIC has over two hundred of these giants. Oil is fed forward to the firebox under 5-pound pressure. Common gag is to watch new firemen try to measure fuel while air is cut in—sure way of getting a facial

Southern Pacific. When California fruits and vegetables began to be shipped east in ever-increasing quantities at the turn of the century, this rail link across the Sierras presented an acute motive-power problem. From Roseville to Summit lay eighty-nine miles of toiling, twisted trackage, with a vertical rise of 6623 feet, involving a 2.65 percent ruling grade. To conquer this mountain barrier with heavy trains, the Espee ordered two Mallets from Baldwin in 1909. As we have already mentioned, they were of the 2-8-8-2 arrangement, fitted for conventional operation.

When they went into service there was no doubt in anyone's mind that they could haul tonnage assigned to them. But one important factor had been overlooked. That was the thirty-eight mile stretch of snowsheds extending between Truckee and Blue Canyon. These tunnel-like structures, built to keep the line open in wintertime, when drifts piled from fifty to two hundred feet deep in the passes, became deadly lethal cham-

Photo by Wendell H. Kinney, 2525 E. 49th St., Los Angeles 11, Calif.

Super Engines of Their Day

	Erie 2-8-8-8-2	Virginian 2-8-8-8-4	Virginian 2-10-10-2
Numbers	5014-5016	700	800-809
Cylinder Dimensions	36x32(6)	34x32(6)	30 & 48x32
Driver Diameter	63	56	56
Boiler Pressure	210	215	215
Grate Area	125.5	108	108.7
Weight on Drivers	766,300	726,000	617,000
Locomotive Weight	860,350	844,000	684,000
Tractive Effort	160,000	166,300	176,600 (simple) 147,200 (compound)
Builder and Year	Baldwin, 1914, '16	Baldwin, 1919	American, 1913

bers as the full-barreled 4000 and 4001 sent their mighty exhausts crashing against timbered roofs. So many engine crews passed out that the Mallets, or "Articulated Consolidations" as the railroad had come to call them, were assigned to another part of the system.

Still they had sold themselves on the basis of performance, and J. J. Kruttschnitt, who later became president of the Southern Pacific, was loath to abandon this form of power. A solution to the problem suggested itself opportunely. Overseas, the Italian State Railways were encountering similar difficulties with the conventional engines used in Alpine tunnels. Their answer was an eight-wheeler, built to run backward, with a cylindrical water tender coupled to what should have been the engine pilot. Coal was stored in bunkers at the sides of the cab, which now preceded the troublesome stack exhaust. Numbered the 6943, this machine was widely publicized and Kruttschnitt, on studying the design, immediately recognized its peculiar adaptability to Sierra service. For while no coal-burning engine of any size could have used the cab hopper system of storage, the Espee locomotives in this territory burned oil, which could be piped the length of the engine under pressure with little difficulty. Plans for fifteen cab-in-fronters of the 2-8-8-2 design were drawn up by Howard Stillman in 1909, and the engines, themselves, completed one year later. While there was some objection to the vulnerable position of the crew in case of a collision, this was met by making the rear engine bed of extremely sturdy construction.

In 1911, twelve passenger engines of the articulated Mogul type were added to the fleet. Due to excessive flange wear with both types, they were later converted to 4-6-6-2s and 4-8-8-2s, to better stabilize the engine weight on curves.

Today's cab-in-fronter—the system has more than two hundred of them, all converted into single-expansion machines or built as such—are unique in being tailored exclusively to the operating problems of one railroad. You'll find them rolling reefers wherever the grades are tough.

THE SECOND ENGINE ODDITY had no such record of success. This was the *Triplex* or *Centipede* type, with which the Erie and the Virginian

Photo from Joseph Lavelle

DUPLEX type was the name the Southern Railway gave to Mikados and Santa Fe's equipped with auxiliary tender engines. As coal pile and water went down, so did their tractive effort

once dreamed of conquering eastern grades.

It was in 1914 that the former road received the first such giant from the Baldwin Locomotive Works. For months, railroading publications had been carrying advance publicity. Here was another "World's largest engine." Specifications called for no less than sixteen driving wheels, motivated by six cylinders! The high-pressure bores, conveniently placed at the center of the locomotive, were so arranged that the exhaust from one fed a forward, low-pressure engine with a hinge-joint at its rear. The second high-pressure cylinder, in turn, vented steam to a third engine, located beneath the cab and tender. To obtain the usual compounding ratio of 1 to 2, all six steam cavities were of identical size. A Ragonnet power reverse gear had been arranged to throw three sets of Baker valve motion simultaneously, and at maximum cut-off, a tractive effort of 160,000 pounds was carded.

In accordance with the railroad's policy of naming locomotives for enginemen having a particularly fine service record, the 5014 honored *Matt H. Shay.* Before his recent retirement, Shay had won the esteem of his fellow railroaders, first as a fast passenger runner on the Mahoning Division, and later in drill engine work at Youngstown, Ohio.

Following completion, the *Triplex* made a number of test runs over the Baltimore & Ohio where she distinguished herself by ripping her steam dome off on a bridge in Philadelphia. Sent on to Susquehanna, Pennsylvania, she did a consistent job of justifying the criticism leveled at her designers: G. R. Henderson, of Baldwin, and William Schlafge, general mechanical superintendent of the Erie Railroad system.

"Too many legs and not enough boiler" the curse of this *Triplex* and two sister machines which followed her to the Gulf

Photo by W. H. Thrall, Jr.

TODAY the Southern operates a big fleet of well-groomed simple articulated engines. Here's No. 4056, talking through her twin stacks on the 4.5 percent Saluda grade in western North Carolina

ABOVE: Northern Pacific 4-6-6-4, wheeling a redball freight. Engines of this class cost the railroad a quarter of a million dollars apiece

Summit Grade in 1916. All three made use of a huge and novel type of feedwater heater, consisting of two drums measuring twenty-four feet in length and located at the bottom of the tender tank, where the exhaust from the rear engine passed through them enroute to an auxiliary smokestack. These were a dismal failure and contributed more than any other single factor to the poor steaming qualities of the big mills. In 1927 they were retired

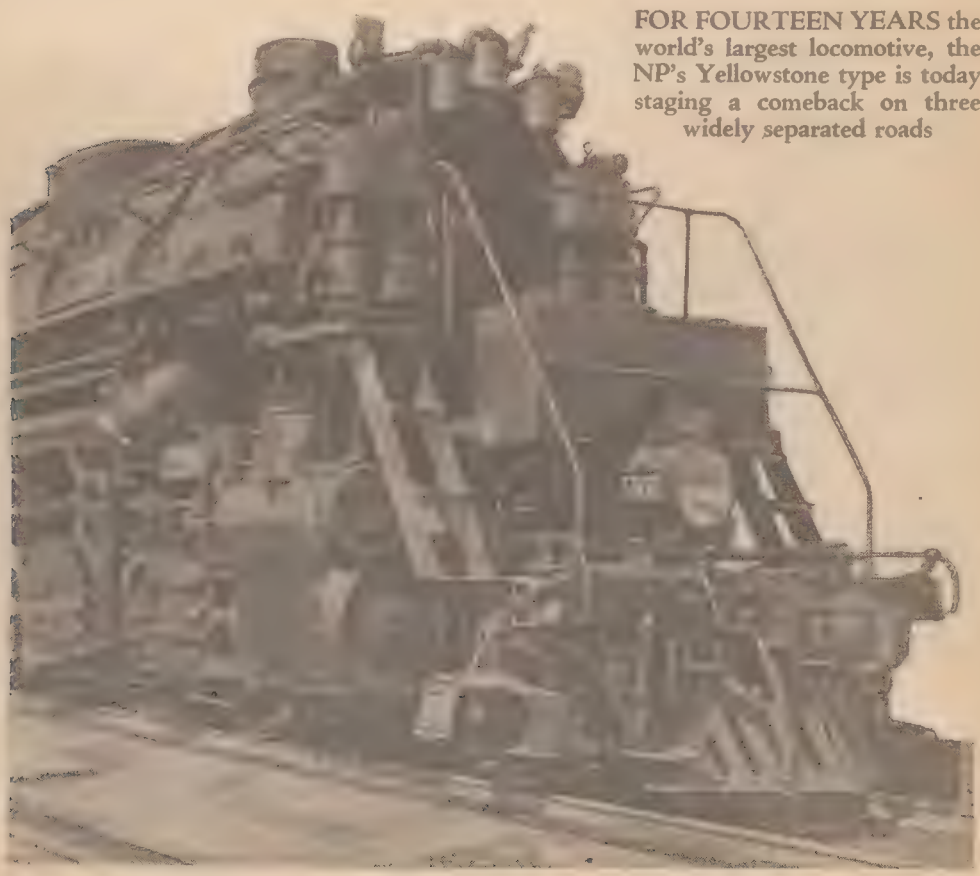
from service. The 5014 was scrapped two years later, the 5016 in 1930, and the 5015 in 1933.

Failures they certainly were, but Erie men never tire of telling the story of an amazing test run made by the *Matt H. Shay* shortly after she came to the line. For weeks fifty-ton hopper cars of the sturdiest construction were pulled out of trains at Binghamton, New York, and held on sidings.

Then one day the super Mallet drifted in from Susquehanna and locked coupler knuckles with two hundred and fifty loads. A brace of pushers backed the long drag up to ease the strain of starting. Babbling through her head the *Triplex* got her tonnage under way, cleared the end of the yard, where the helpers cut off, and headed up the long curving grade toward her home terminal. For seventeen miles all went well. Then as she bit in the staple turn at Great Bend, it happened. Somewhere along the length of the 18,000 ton drag, an air-hose burst and the brakes dynamited.

That was the end of the run. The hoppers were brought home in three sections—any one of them tonnage rating for an ordinary engine.

THE VIRGINIAN fared little better with its lone Triplex. In 1913 this road had purchased ten enormous articulated compounds of the 2-10-10-2 wheel arrangement from



FOR FOURTEEN YEARS the world's largest locomotive, the NP's Yellowstone type is today staging a comeback on three widely separated roads

SOUTHERN PACIFIC's only conventional "4-8s" operate out of El Paso. They burn west Texas coal and have *Daylight* smoke lifters to increase visibility

Photo by Richard Kindig, S. Aust

Alco. Their low-pressure cylinders, measuring four feet in diameter, were the largest ever cast for a locomotive and with the engine working simple, a never-since-equalled tractive effort of 176,600 pounds was developed. Still these machines could not entirely eliminate the tonnage bottleneck existing between Elmore and Clarks Gap. Perhaps the new Baldwin design, using lower drivers than the *Matt H. Shay,* would do the trick.

Henderson, when consulted, was enthusiastic. He recommended, among other changes, a four-wheeled trailer truck at the rear of the tank, to cut down lateral oscillation. The machine was built, put into service, and found wanting. In 1920 the tender was removed and its engine converted into Mikado Number 410. The locomotive itself became 2-8-8-0 Number 610 and was retired in '36. As for the 2-10-10-2s, they were scheduled for scrapping some years back, but went onto the road again when wartime traffic made it necessary to press every available locomotive into service. They represent the fullest development—in point of size—of Anatole Mallet's great dream.

For awhile hundreds of compound articulateds were still destined to be built, certain fundamental objections prevented further exploitation of the design. The larger such machines became, the greater grew the already enormous back-pressure from the forward cylinders. Power output was unbalanced at any but the lowest speeds, resulting in loss of horsepower and heavy pounding when the locomotive drifted. Further, the advantage of distributing the weight of reciprocating and rotating parts over two sets of cylinders was now gone completely, insofar as the low-pressure engine was concerned. Road

Lower photo by Donald W. Furler, 65 Glen Ave., Glen Rock, N. J.

PIONEERS in the field of high-speed articulated design. Top photo: the B&O's Altamont-climbing KK-1 Class, outshopped in December 1930. Lower photo: Seaboard 2502 and her sisters relieve single-track freight pressure

Photo by Henry R. Griffiths

ABOVE: Big engine for a bigger job. ***Challenger*** 3904 thunders westward through Wyoming with a Union Pacific extra

clearances, too, precluded larger bores.

Thus, as we have seen, the Canadian Pacific found an incentive to build a single expansion articulated engine as early as 1911. In the following year, Alco completed for the Pennsylvania Railroad a 2-8-8-2 numbered 3396, which took steam directly into four twenty-seven by twenty-eight-inch cylinders. With a boiler pressure of one hundred and sixty pounds, fifty-six inch drivers and a weight upon them of two hundred and forty-one tons, she showed a starting tractive effort of 99,200 pounds.

As is frequently the case with engineering developments, the originating road in both of these instances became discouraged over secondary failures in design and overlooked a basic triumph. We find the CPR, for its part, abandoning articulated engines altogether; while the Pennsy, after one further attempt in the sim-

BELOW: Great Northern's 2032, her green boiler edged with the gilt of the setting sun, lumbers around the horseshoe curve at Blacktail, Montana, enroute to the ridgepole of the continent. A helper appears in the background, directly above the monster's cab

LARGEST and most powerful Challenger type engine is the Rio Grande's L-105 Class. Her schedule over the Wahsatch Range (15 Pullmans westbound, or 16 eastbound) appears below

WESTBOUND

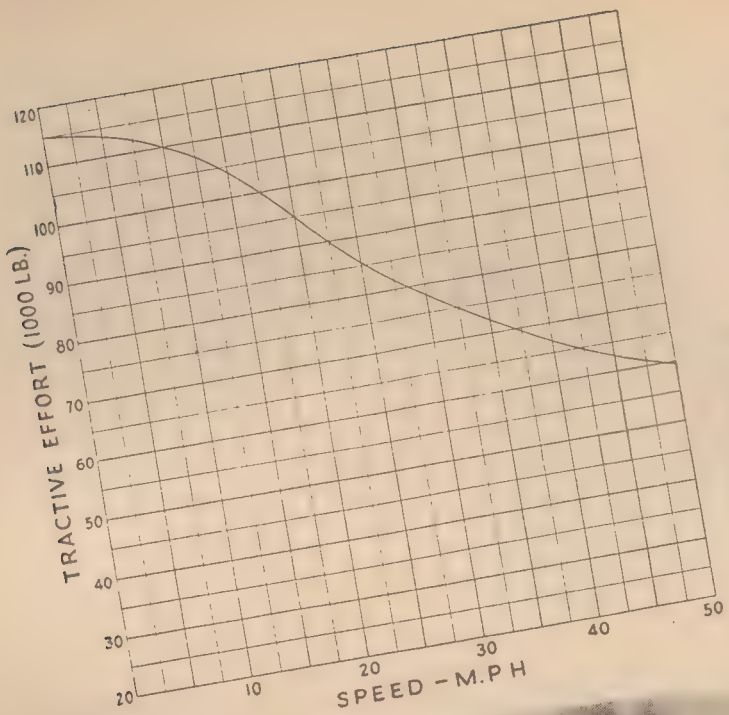
District	Miles	Ruling Grade	Average Speed
Helper to Kyune	12.8	+2.40	21.95
Kyune to Soldier Summit	12.1	+1.00	33.00
Soldier Summit to Thistle	29.5	—2.00	31.00
Thistle to Salt Lake	64.2	—0.65	44.20

EASTBOUND

Salt Lake to Thistle	64.2	+0.65	43.30
Thistle to Soldier Summit	29.5	+2.00	28.60
Soldier Summit to Kyune	12.1	—1.00	38.20
Kyune to Helper	12.8	—2.40	19.70

ple articulated field, contented itself with using a few Mallet compounds in heavy pusher and humping operations around Columbus, Ohio.

That second PRR engine, incidentally was something of a milepost. Designed and built in 1919, she ranked as the largest machine ever to leave the Altoona shops. Profiting by experience gained in the operation of the I-2 Decapod series, she was equipped with a 50-percent cutoff. To supply ample steam, a boiler having a one-hundred-and-ten-inch outside diameter was applied. Tubes were held down to nineteen-foot length by placing a twelve-foot open section or



LEFT: tractive effort curve of the L-105 shows high capacity in the upper speed ranges

BELOW: Rio Grande 3709, the only engine of the original series to be equipped with Worthington feedwater heater, makes a servicing stop at Thistle, Utah

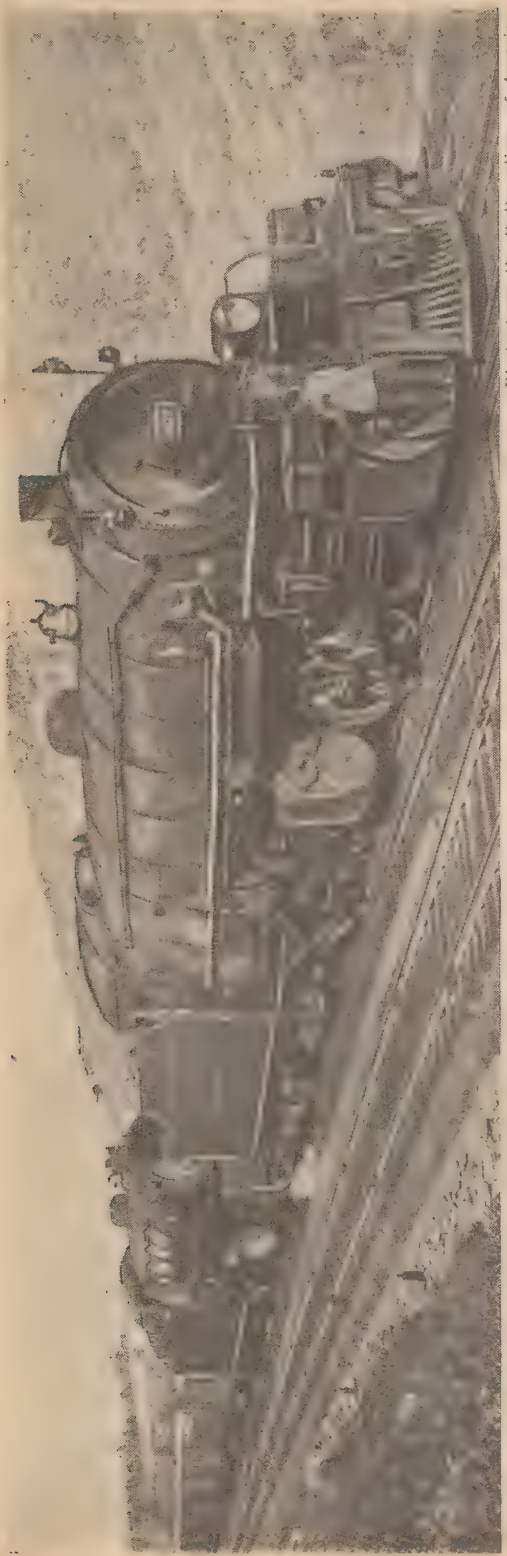


Photo from the Railroadians of America

DELAWARE & HUDSON runs its helper Mallets backwards up the hill from Carbondale to Ararat, Pa. This permits them to make a speedy return, running light

combustion chamber behind them, wherein gases from the firebox were given a full opportunity to ignite. Special appliances were required to protect her twenty-five-foot-long crownsheet. Another innovation was the use of four separate exhaust pipes, feeding an equal number of smoke stacks, grouped in a single casting of large diameter.

But Number 3700, as she was called, was too powerful for head-end work. She gutted so many drawheads with her 135,000 pound tractive effort that the road finally put her to work shoving tonnage over the Alleghenies. In 1928 she was cut up for scrap.

By then the simple articulated engine was well on its way to success. One year earlier, George McCormick, general superintendent of Southern Pacific motive power, had inaugurated a study of single-expansion articulated locomotives that resulted in an initial order for ten such machines from Baldwin, along with extensive conversion of existing compound A-Cs. We have already traced this move to its conclusion.

Other systems followed suit. The Reading, for example, had begun changing its thirty-one 2-8-8-0 Mallets to Santa Fe types in March, 1927. After rebuilding eleven engines, the line dropped this policy and set about simplifying the remainder. At present, only five are operating as compounds and they will be altered as soon as possible.

BEAUTY and power are combined in the D&H's 1505. Alco ingeniously placed more tonnage on the drivers of the forward engine, to compensate for shifting of water weight toward the rear when the locomotive works upgrade

NINETEEN TWENTY-EIGHT found the Northern Pacific ordering a four-cylindered Alco giant of a brand new wheel arrangement. Designated the *Yellowstone* type, she substituted a four-wheeled trailer truck for the customary, single-axle job. This made possible a grate area of one hundred and eighty-two square feet—or a firebox large enough to comfortably seat twelve people at a banquet table. To rake the forward end, supplementary ports were placed in the water-legs, directly beneath the running boards and above the last set of drivers. Such unheard-of procedure was necessitated by the low-grade coal mined for NP power in railroad-owned pits at Colstrip, Montana.

THESE Western Maryland behemoths walk out of Connellsville, Pa, with 11,000 ton coal drags

In every other specification save maximum tractive effort, the new 2-8-8-4 was a monster without equal. Her boiler, weighing eighty-two and one-half tons, was capable of evaporating sixty tons of water per hour, and her stoker bore a guarantee to deliver 40,000 pounds of coal to the firebox during the same period. She had the first power-operated throttle ever to be applied to a steam locomotive, the highest horsepower rating, and the greatest length (125 feet) from coupler to coupler. Only the Virginian 2-10-10-2 exceeded her 153,400 pound* starting tractive effort.

The reason for so large a road engine was the usual one—an effort to equalize tonnage ratings on a mountain division; in this case the two hundred and sixteen mile district extending between Mandan, North Dakota, and Glendive, Montana. The length of gradients involved and their locations precluded pusher service. It was decided, then, to develop a locomotive which could handle the tonnage being hauled on other parts of the system by heavy Mikados, without splitting up, or "breaking" the trains. Today twelve *Yellowstones* do the job, hauling four-thousand-ton freights without difficulty. The first of the series, as we have said, was built by Alco; the remainder came from Baldwin in 1930.

Newer, roller-bearing versions of the prototype are to be found on another road, the Duluth, Missabe & Iron Range, which use eighteen of them for heavy ore traffic between the Mesabe and Vermillion Ranges and

*With booster.

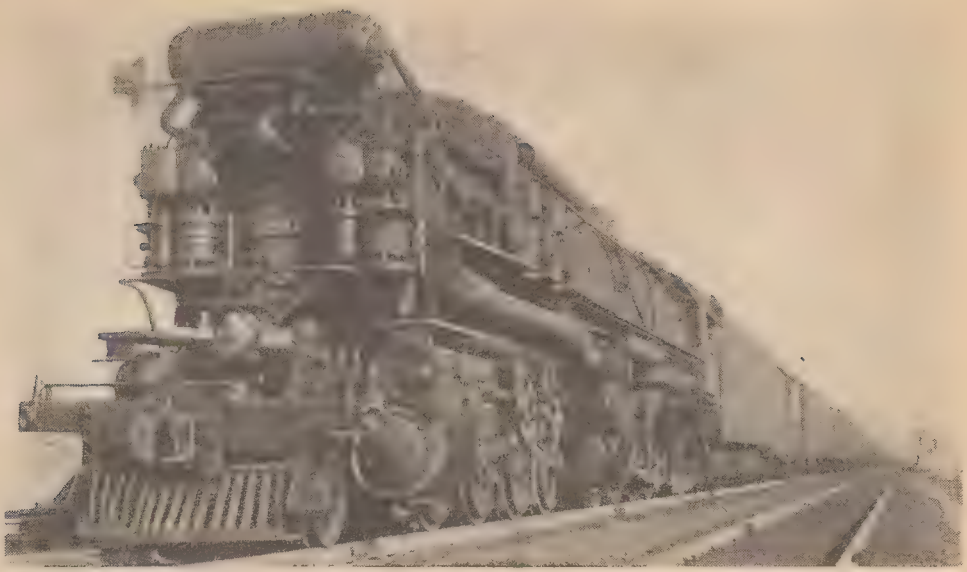
dockside at Duluth. Contrary to public opinion, the run is not continuously downhill. There are numerous adverse grades, the heaviest averaging 0.62 percent for three miles.

As we go to press, twenty-two more 2-8-8-4s are being built by Baldwin, of which an even score will go to the Baltimore & Ohio and the others to the Bingham & Garfield. A profile drawing of the B&O machine appears on pages 44 and 45. She will have twenty-four by thirty-two-inch cylinders, sixty-four-inch drivers, two hundred and thirty-five pounds' boiler pressure, and a tractive effort of 115,000 pounds. Total engine weight is estimated at around three hundred and twenty tons.

THE NEWEST and most important trend in articulated engine design, however, had its beginning in 1931, when the road which originated the American Mallet ordered two high-drivered, single-expansion engines from Baldwin, both of the 2-6-6-2 wheel arrangement, but differing in their boiler construction. Numbered the 7400 and 7450, they were intended for manifest freight work, handling trains of moderately heavy tonnage. They rated as the first simple hinged locomotives to lay emphasis on speed, rather than enormous hauling capacity. One of them, too, was unique in having a water-tube firebox.

Had these engines been used on districts involving moderate grades, the full potentialities of their seventy-inch wheels might have led to a wider use of such power on the B&O. But assignment to runs involving the road's Piedmont-Altamont ruling, grade — seventeen miles of heart-breaking climb involving a maximum lift of one hundred and sixteen feet to the mile—is not their basic forte and they have not been duplicated.

To the little coal- and iron-carrying Pittsburgh & West Virginia Railway goes the credit for the next step forward in the field. This was its introduction of a new wheel arrangement in 1935, when an initial batch of 2-6-6-4 type engines came to the line from Baldwin. Although their drivers were seven inches lower than those of the Baltimore & Ohio loco-



CHESAPEAKE & OHIO 2-8-8-2s like the 1542, bowed to the non-articulated Texas type in 1929. But trains continued to grow in weight, and two days after Pearl Harbor the road took delivery of the first of thirty huge Lima-built engines numbered in the 1600 series. To give their long fireboxes unrestricted draft, six-wheeled trailer trucks were placed beneath them

motives, four-wheeled trailing trucks made for the kind of free-steaming that spells horsepower.

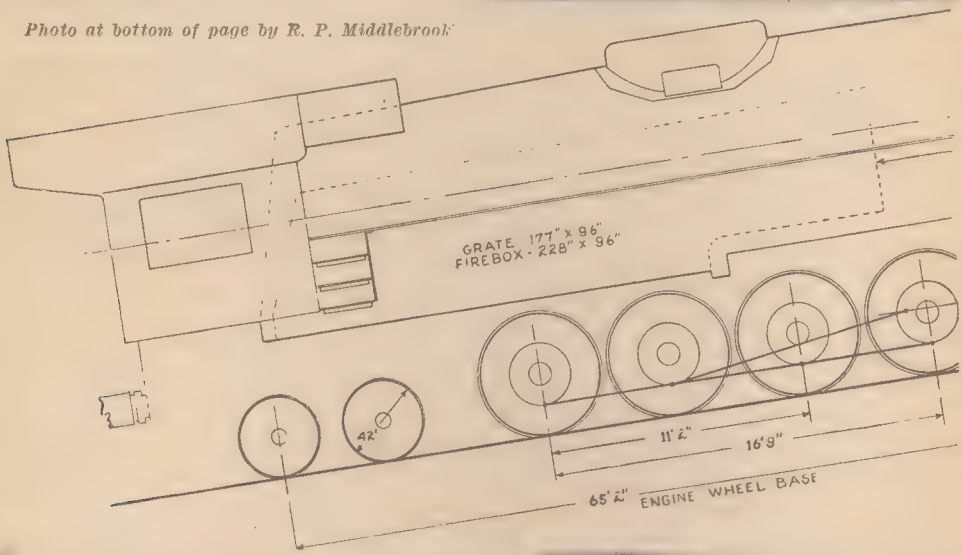
But it remained for the Seaboard and the Norfolk & Western to take full advantage of the 2-6-6-4 design. The former line's 2505-2509 group, completed shortly after the P&WV engines used sixty-nine-inch wheels to loosen up heavy single-track traffic.

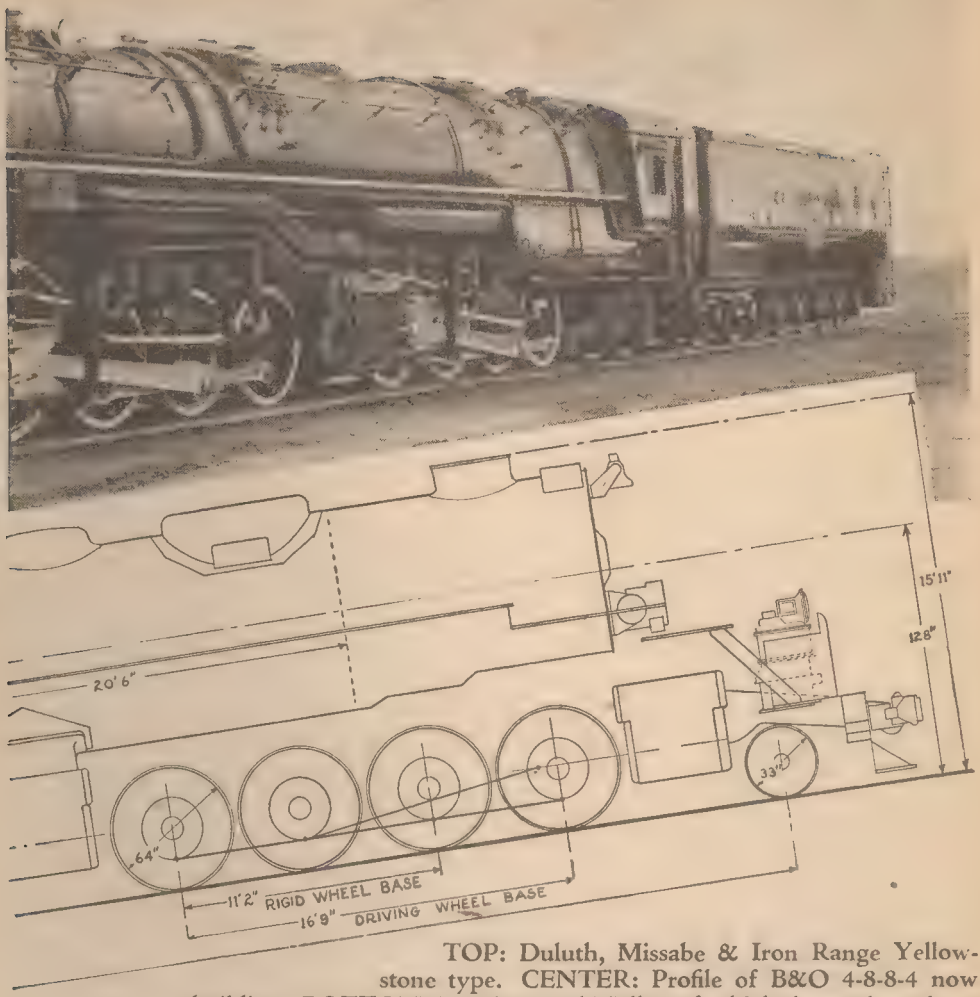
The Norfolk & Western 2-6-6-4 of which two units were put in service in 1937, represents the road's first de-

parture from Mallet compound construction. Designated Class A, it is regarded by many as the handsomest articulated machine ever produced, combining great size with distinctive simplicity of outline (see illustration, pages 8 and 9). In constructing the 1200 and 1201, it was not the intention to supplant 2-8-8-2 type compound machines, which had reached their highest development in the Y-6 class. For the Mallets were, and still are, ideally suited to heavy coal-drag service; so much so that the N&W continues to build them to this day.

Rather, the purpose was to produce a duel-service machine of high haul-

Photo at bottom of page by R. P. Middlebrook





TOP: Duluth, Missabe & Iron Range Yellowstone type. CENTER: Profile of B&O 4-8-8-4 now building. BOTTOM: Logging road Mallet, of which dozens have been outshopped since 1910

ing capacity which could maintain existing passenger and manifest schedules. A comparison of the two N&W types shows clearly how each locomotive has been fitted to the operating condition it is intended to meet.

	Y-6	A-1
Cyl.	25 & 39x32	24x30
Driv.	57	70
Press.	300	275
Grate	106.2	122
T. E. (simple)	152,206	104,500
(compound)		126,836
Wt., Loco.	582,900	570,000
Bldr.	RR Shops	RR Shops

An N&W innovation is the use of what is known as a "floating driving-axle" roller bearing installation which permits engine weight to be transmitted directly to the wheels, instead of through the shafts. The mechanical principle is simple enough. As in the case of a conventional locomotive, the wheels are rigidly mounted—but only for pur-

poses of quartering and spacing. For the driving box assembly encasing the axle is drilled oversize and has a short sleeve extension containing a track surrounded by roller bearings. The remainder of the roller housing is bolted directly to the inside of the wheel. Thus the drivers spin upon the rollers, while the axle rides free in its sleeve. A material decrease in oil consumption, greater engine availability, and decreased maintenance costs are claimed for the arrangement.

TO THE UNION PACIFIC goes the credit for two of the three remaining engine types which bring our story to completion. The first or *Challenger* design needs no introduction to *Railroad Magazine* readers.

In search of a more flexible unit than the twelve-coupled *Overland* type being operated on the less mountainous portions of the system, the road in 1936 received from Alco fifteen 4-6-6-4s, capable of negotiating twenty-degree curves and operating on grades of up to three percent. With twenty-two by thirty-two-inch cylinders, sixty-nine-inch drivers, a boiler pressure of two hundred and fifty pounds, and a weight of two hundred and ninety-one tons, of which two hundred and one tons were applied to adhesion, these machines showed a starting tractive effort of 97,400 pounds.

Their four-wheeled leading trucks gave a clue to speed potentialities which were soon converted to fact. Originally operated between Green River and Laramie, they were so successful in both freight and heavy passenger service that additional orders have since raised the total of such machines to eighty-five. Another batch of six up Challengers was recently diverted by WPB order to the Rio Grande.

The latter road, incidently, has developed the most powerful version of the 4-6-6-4 type ever outshopped. With a drawbar pull of 105,000 pounds, units of this L-105 Class conquer Soldier Summit in the Wasatch Range with 2870-ton freight trains, unassisted. In passenger service, too, they meet the remarkable schedule tabulated elsewhere in this article.

Other systems which have adopted the same form of power are the Western Pacific, the Northern Pacific and its controlled affiliate, the Spokane, Portland & Seattle, the Delaware & Hudson, the Western Maryland and the Clinchfield. With the single exception of the rigid frame 4-8-4 design, it constitutes the most popular wheel arrangement currently being ordered by American railroads.

But the upward spiral never stops. No sooner does a locomotive meet a given set of conditions than clamor begins for rebalancing tonnage ratings. Thus, when the Union Pacifics' *Challengers* proved their metal east of Green River, demands arose for a super *Challenger,* to handle the same trains over the tougher gradients between that point and Ogden, Utah. The result was the introduction of the 4-8-8-4 type, whose twenty units rank, today, as the world's largest steam locomotives. Weighing three hundred and eighty-one tons without tender, engines of this class have an overall wheelbase of one hundred and seventeen feet, a tractive effort of 135,375 pounds and, with sixty-eight inch drivers, are capable of attaining a top speed of eighty miles per hour.

The last word in articulated power? Not quite.

TURN TIME AHEAD a few months from their date of delivery to December 9th, 1941—two days after Pearl Harbor. Out in Lima, Ohio, an office car has just pulled in from Cleveland. Chesapeake & Ohio motive-power officials cross the cinder-ballasted Nickel Plate yards, pick up their "dog tags" at the gates of the Lima Locomotive Works, and cut through the sprawling erecting shop to the open test-track beyond.

Down where the rails curve to the right is another building, fresh with the smell of paint and dryer. They shove open the door and stop abruptly. The small builder's photo which each member of the party received with his identification card has given no hint of the spectacle within. One hundred and twenty-eight feet of Appalachian tonnage mauler; a height from tire to smokestack rim of sixteen and one-half feet; twin sand domes with a combined capacity of eight tons of seashore; six pair of sixty-seven-inch drivers and—that's right—a six-wheel trailing truck. The extra axle wasn't put there for ornamentation. It had to be added to keep one hundred and thirty-five square feet of grate area below the level of the rear main wheel.

Even the men who have watched this engine take shape from a score of tracing paper layouts cannot conceal a certain degree of pleased amazement. They climb into the cab's green interior; look down the long barrel, rolled from steel plate that measures an inch and one-eighth in thickness; drop back to the ground to inspect the tender trucks—one six- and one eight-wheeled unit, for better absorption of weight.

Nobody doubts the word of D. S. Ellis, chief mechanical officer of the road, when he casually states that the 1600 will handle 5750 tons between Clifton Forge, Virginia, and Hinton, West Virginia, unassisted.

There is further talk of a tractive effort of 110,200 pounds and an engine weight of three hundred and forty-eight tons. But it takes a veteran newspaper man named Joseph Doherty to sum up the thought that is uppermost in everybody's mind. Turning to Walter Jackson, originator of "Chessie," the cat, he shakes his head and says:

"When people have the will to build an engine like this, they're bound to win a war!"

Souvenirs

By NEWTON G. THOMAS

CHUCK BENTON, boomer telegrapher, just assigned and just arrived, stood on the Atwater station platform and watched the tail lights of Number 5 twinkle farewell. "Better I'd stayed on her," he muttered to himself. He wasn't sure why, but the conductor's words still rang in his ears:

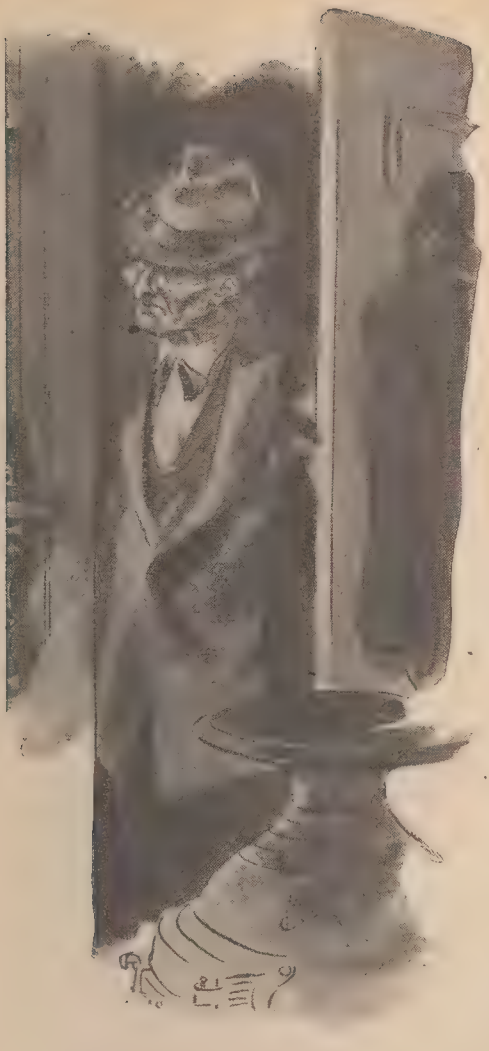
"Come on, young feller! This is your jumping-off place, such as it is. Water tank, store, four or five houses, the depot and Old Hargy. Queer duck, Old Hargy! Can't seem to keep a night man long. Good luck and don't forget your baggage."

"Humorous old coot," Chuck thought as he scanned his unkempt figure. "No baggage is right. Might as well have no pockets." He thumbed his nose after the vanished train and silently cursed the departed conductor. "Gabby feller! Hollered 'All aboard' to an empty station. Well, I'd better report. I guess I'm here."

In his search for Hargy the operator saw all of the community known as Atwater. There were half a dozen heaps of gloom, with a few spots of yellow light.

Chuck sized it up: "Yep, it's like he said. Not a sign of life."

Hargy was wrestling with a four-wheeled baggage truck at the far end of the platform. Chuck went over to him.



"My name's Benton. New night man."

He added his strength to the agent's, shoving the truck into the freight house. Hargy only grunted. The newcomer felt the old man's eyes, disdainful and suspicious. He felt the silence too.

"Hell!" he thought. "What am I griping about? I know what they all think of boomers."

The freight-office door, closed and locked, Hargy led the way into the ticket office.

"I'm Hargadine, the agent. Here's the keys—office and cash drawer."

He removed his uniform cap and coat and replaced them with a shapeless fedora and something that had once been double-breasted and had three buttons, but now had one. The change in no way lessened the sheen of Hargy's disposition. He started away, but reconsidered. "Will you be here when I come in the morning? Why company officials encourage boomers, I don't know. No sense of responsibility—" He glared what he left unspoken, easing out through the door.

After the elderly man had gone, Chuck grinned. "Yes, I know you're the agent, Hargy, but who in hell wants to be an agent? These hick stations are germ-carriers and you've caught it bad. You'd let a boomer starve to death." He stopped short. "Which reminds me, tomorrow morning I'll have to find a place to eat."

The lightning slinger peered around the office. It differed no whit from the scores he had seen and worked in during his telegraphic career, except that this was dirtier than most.

"I'll bet that lamp globe hasn't been dusted since the last pay-car stopped here. I might as well polish it."

This he did, and continued his tour of inspection.

In the freight house, an open box of cookies met his eye. It had been jammed in transit and doubtless would be refused. He filled his pockets and went back into the office to make the best of a dry lunch—his only food in twenty-four hours. While thus occupied, a freight went by westbound. It was ten-thirty by the depot clock. Then the dispatcher came on the wire calling WR.

"That bird at WR must be in the hay, and little Chuck will be shortly."

Suddenly the thought dawned on him that WR could be the call for Atwater.

"Come to think of it, the old fogie failed to mention the office call before he left. He was more interested in airing his notions of boomers."

Without straightening up in his chair, the brass pounder leaned over lazily and opened the key.

"What office is WR?" he tapped.

This simple question apparently was too much for the dispatcher's self-control.

After two vitriolic words Chuck shut off to let him cool, and then began, "I'm the new man at—" But the DS would not let him finish. Once more Chuck threw the circuit open. A minute of silence and he tried a third time.

"I'll tie up this wire for the night unless you answer me. Is the Atwater call WR?"

"Yes, it is," came the sputtering answer. "Go ahead and clear that extra west. You guys think—"

"Thanks for the compliment you don't mean. Clear the freight west at ten-forty?"

"Okay! Try to stay awake the balance of the night."

For minutes the new man mooned in his tilted chair. "I'll bet that bird hasn't been set up long from an operator. Funny how operators and brakemen swell when raised to dispatchers and conductors! He slings a wicked fist, at that. It has a familiar ring, too. Wonder who he is? Guess I'll grab a little hay before I collapse." Stretched out on the table, his last thought was of Hargy. "The old boy's spirit is potent tonight."

IN THREE minutes by the standard clock, Chuck Benton was aroused by loud raps at the ticket window. He shoved the window up impatiently, revealing the head and shoulders of an excited man who appeared to be Italian.

"Hey, boss! You gotta da pass for forty-eight mans to St. Paul?"

"Hello, Figaro!" Chuck replied. "I don't know what you're jabbering about?"

"Listen, boss, my name she's no Figaro. Please, don't maka da fun. My name she's Tony. I'm a extra ganga foreman, see? Five days now, deesa forty-eight mans wait for pass to St. Paul. Alla time stall. Eef you not gotta pass we gonna break everyt'ing—depot, operator. We gonna keel somebody, see?"

"*Si, si,* Tony. Let's get it straight. You're the boss of an extra gang, and the road folds the gang up for the winter, and you've been waiting five days for a pass to St. Paul. Is that right?"

"You right, boss. Fiva days now and deesa forty-eight boys raisa plenty hell. I no can keep from keel somebody eef deesa pass she's no come right now. Please, boss, you feex up pass?"

With Tony's last word the sound of many feet announced the arrival of his gang.

"Queek, boss, queek! Say somet'ing."

"Okay, Tony. Tell those tie-tampers everything is all right. I'll get you off for St. Paul tonight."

Forty-odd weather-beaten Italians surged into the waiting-room, chattering and gesticulating. Tony calmed them with his good news and the gang started for the bunk cars to get their belongings—all but Tony. When the last man had gone Chuck called the dispatcher and asked if he knew anything about a pass for fifty men.

Evidently still sore and snooty from the little argument earlier in the evening, the dispatcher snapped a terse "No."

Chuck persisted: "Can't your night chief get hold of someone from the Supe's office or the roadmaster's and straighten this thing out before these boys set fire to the depot? They've threatened to tear it down and kill someone and they're not fooling."

"No, I can't; and I don't give a damn what they do to the depot, or you either."

"Just remember that when you talk to the chief in the morning."

Chuck glanced at the timetable and saw that Number 2 was due at Atwater at 5:15 a.m. After considering the situation for a minute, he said:

"Well, either me or Tony and his gang will have to take Number 2 out of here this morning; and as for me, Number 2 is going the wrong way. That elects Tony unanimously."

"What deesa guy say, boss—deesa guy what maka trains all late, the chiefa dispatch?"

"He says okay, Tony. The conductor on Two will have a pass for you. All you have to do is get on. How's that Tony?"

"Boss, you sure one swella guy. Here's a coupla bucks. You buy somet'ing."

"Thanks. Return by four-thirty."

"Right, boss!" Tony beamed and followed his men.

The lightning slinger dropped the ticket window a bit wearily and glanced at the clock.

"Almost midnight," he pondered. "Tony won't be back for four hours. And four hours will pick me up in good shape." A light tap startled him. "If that's Tony I'll shoot—"

Again he raised the glass. This time he faced a girl, a honey blonde, and stared at her with wide-open eyes in silent surprise. Then she spoke.

"I'm Lucy Hargadine, the agent's daughter. Father forgot to give you the station call. It's WR. He forgot to clear Number 5, too."

Chuck grimaced. "*Forgot* is a popular word on a railroad. Any more forgots?"

"Yes, I was asked to tell you, but I left on a date and forgot. Please don't tell Dad."

"A chip off the old oak, eh?"

Chuck was mollifying under feminine appeal. Lucy's half-smile lingered as she stepped from the ticket window to the door. Now that her full stature was in view, the op exclaimed, "Not half bad!" in masculine approval.

She made a face at him, saying, "Don't forget," and then slipped out.

AGAIN Chuck Benton shut himself in and looked at the big office clock. It was midnight. The mental picture of Lucy Hargadine blended into his dreams as he fell asleep. But at three forty-five he was awakened by heavy feet and a clatter of tongues. Chuck rubbed his heavy eyelids and opened the window. Tony had come back.

"Hey, boss, you checka da bag?"

"Sure, Tony. How many pieces?"

"Fifaty-seven, boss."

Chuck could find only thirty checks, so he decided to use both the original and the claim half for the emergency. Accordingly, he tore the checks into halves, one with the string and the other with none.

For easy shaves—and slick ones, too—
This low-priced blade's the thing for you.
For Thin Gillette saves time and dough
And lasts you long, say men who know!
Precision-made to fit your Gillette Razor exactly
Gillette
4 for 10c
Produced By The Maker Of The Famous Gillette Blue Blade

Then he produced a ball of twine, called Tony and asked, "You got a knife?"

"Sure, boss, we gotta plenty knifes! See? Here's a mine. She's jus' like da raze."

"I'll take your word for it. Now I'll show you." With the keen blade he cut a hole and attached a piece of twine. "See, Tony?"

"Si, si!"

Chuck shoved the rest of the checks to the foreman and ordered, "Go to work!"

A matter of minutes and the bags were checked. A note to the GBA would take care of the other end. The op called Tony.

"What is it, boss?"

"Tell your men to have their bags ready and as soon as the baggage-car man opens his door, have them toss their bags into the car. You savvy, Tony? We can't delay the train."

"Sure, boss, sure," and the foreman instructed his gandy dancers.

In a minute Tony was back. "Hey, boss! You lika moosic? No—yes?"

"Sure, Tony. What you got?"

"Everyt'ing — 'cordeo,' mouth-harp, good seengers. What you like?"

The music started, but it soon stopped with the screech of train Number 2.

"Addio, boss! You great guy!"

Chuck watched proceedings on the platform until her red markers went by.

"Huh! What a night! Boomer's luck! I hope the skipper doesn't try to put those boys off. If he does, he'll be in the headlines tomorrow."

The lightening slinger cleaned up the mess the trackmen had left and then sat down to await developments.

"WR—WR—WR."

"There it comes!" said Chuck as he reached for the key.

"Conductor asking if you know anything about a pass for about fifty men to St. Paul. They got on at your station."

Chuck's reply was swift and incisive. "Better ask the master mind, the DS. He knows everything."

The dispatcher was listening in and asked: "What did you do about those men?"

"The important thing I did was save my own life. I hope you're not sorry." Chuck hesitated for a moment. Then: "I'm coming in on the extra west and I'd like to see you."

"What do you want to see me for?"

"Not very much. I've made a sketch of you, and want to see if I've missed anything."

IT WAS 8:04 a.m. when Chuck stepped into the chief dispatcher's office. The late night-trick men were just being relieved by the day force. Chuck asked for the third-trick op on the east end. He walked up behind the man indicated and touched him on the shoulder. Quickly he wheeled and stepped back, perhaps recalling what he thought was a threat. They faced each other blankly for a split second.

"Chuck Benton! For the love of—"

"Joe Allen! What tha—!"

"Don't tell me it was you at Atwater last night! Let's get out of here so we can talk."

They went into the hall and greeted each other all over again.

"That was me, Joe, but what the devil was wrong? You came within an inch of tying up the railroad!"

"Yeah, yeah, I know. I had a hangover. Let's forget all that and go eat. You've been hungry as long as I've known you. I'll bet you don't have a dime right now."

"Right you are, Joe," Chuck responded, forgetting Tony's coupla dollars. "Tell me about last night."

So Chuck related all the details of his busy shift, not omitting Lucy "with the light-brown hair." He suddenly remembered that he was leaving Atwater without having a chance to get really acquainted with the girl.

Joe looked suspicious. "You going back there to work tonight?"

"Hell, no! I'm *from* that place, not *to*. I don't think I'll even ask for my pay. Let 'em donate it toward a war bond for Hargy. I could never face the chief with that yarn, true as it is. Guess I'll head for the Coast."

"I've got a better idea, Chuck. The chief is an old friend of mine. After breakfast I'll go back to see him and tell him all that happened, my half and yours. He's been a boomer himself and understands. I've got two weeks to work and then we'll go on out West together. In the meantime, I'm flush and you can get the wrinkles out of your belly. What say?"

Before Chuck could answer, Joe repeated that he was flush and added: "Eat regular and some clean clothes, eh?"

TWO DAYS passed. Joe told Chuck the chief wanted to see him immediately. Third trick man at Blair, on Joe's territory "blew up" and quit on short notice.

The chief dispatcher, Mr. Koerner, seemed to have wiped the Atwater episode from his mind.

"All right, Benton," he said, "that's fine! The agent down there, Dalton, is a good man. "You'll be on Allen's wire. Hope you boys get along this time."

"No danger, Mr. Koerner. Thanks."

Chuck found Herman Dalton as Koerner had described him. The agent took Chuck home to dinner with him and Mrs. Dalton put up a lunch for his first trick. After dinner the two brass pounders strolled back to the depot where they found Tommy Cavanaugh, Herman's "helper," practicing on a Morse set.

The agent gave Chuck the keys and told him all he thought a new man would need. Then they sat on a couple of crates and swopped yarns. Tommy's eyes bugged as he listened. The story-tellers saw a new ambition glow on the boy's face. A boomer's career was the life of Riley. Midnight slipped up on them. Herman got up and yawned.

"Bedtime."

Tommy followed him out. Halfway through his lunch, Chuck heard footsteps in the waiting-room.

"Good Lord, it's Tony!" he gasped, and then: "No, it can't be. He's in St. Paul—I hope."

He threw up the window, and a much pleasanter face greeted him.

"Hya, stranger! Heard we had a new night man here. Dropped in to say hello. I'm Carl, the night police force."

"Nice of you, Carl. Come on in!"

The law accepted and explained that he often visited the night man.

"You're still welcome," Chuck said.

"You see, there's only three people legally awake at night in this town, the operator and Kitty Cavanaugh, the telephone girl—Tommy's sister—and me. Kitty makes Java at one and we generally lunch together. I'm due there pretty soon."

"You couldn't be warning me, could you Carl?"

"Nothing like that," the policeman said with a sheepish grin. "Be a seein' ya. Good night!"

Next night at twelve, Chuck's phone rang.

"Depot," he said. "Benton speaking."

"This is Kitty Cavanaugh. I asked Carl to take some coffee to you. He'll be there in a few minutes."

"Mighty nice of you, Miss Cavanaugh. Thanks."

"We night owls must look after each other," she purred. "Carl is on his way."

The patrolman came and shortly went. Chuck waited until he was sure they had eaten and called to extend his appreciation. Then:

"How do you keep awake?"

"Quite easily," said Kitty. "I come on at ten. Calls fade from then on. As they thin out, I do my routine work. I talk with operators in various exchanges, many of whom I have never seen. Sometimes curious things happen. For instance: Several nights back a farmer down state wanted Gresham on the G&P, a small place twenty-five to thirty miles from here. The agent wasn't there, so the night operator took the call. After they had finished, I wanted some information for my report so called again. The operator said, 'Bogey speaking.' I thought he was kidding, but he was serious. Did you ever hear such a name, Mr. Benton?"

"Lord deliver us from—"

"I beg your pardon?"

"I'm sorry, Kitty. Talking to myself, I guess. There could be only one Bogey in the world and I haven't seen him in ages. Was his last name Nelson?"

"That's right, Mr. Benton. He had a high-pitched voice."

"Holy mackerel! Say, Kitty, if it's not too much trouble—"

"I'll get him now if he's still there. Wait!"

A sleepy voice grumbled: "Gresham depot—G&P Railroad."

"That you, Bogey?"

"That depends. If you're not the sheriff, yes. If you *are* the sheriff—Bogey died last week. Who's talking?"

"If I had your conscience—! This is your old side kick, Chuck Benton."

They yammered the usuals, and Benton volunteered, "I'm at Blair."

"I know where it is. I'm about twenty-five miles west of you. Our right-of-way parallels yours about a half mile across the fields. You have a station there, Yantic. The agent lives upstairs. How long you been there, Chuck?"

"A few days. Going to the Coast in a week or two. How about you?"

"Been here a month. Got ten days more and then Minneapolis for me.

CHUCK and Bogey had several chats with Kitty's help. One day Chuck asked Herman Dalton if he knew Bogey. He did not.

"Then you've missed something," Chuck said. "He has worked everywhere telegraphers are used, and he is good. Racetracks are his weakness."

Toward the end of his second week, time began to drag for Chuck Benton. The waves of the Pacific were getting more audible by the day. Joe had wired that he was free Saturday. Chuck promised to be in on the first train. He wired Mr. Koerner for relief and the chief had promised. Then came Friday night.

"Eight hours more of this and we'll be on our way, destination unknown," Chuck muttered.

Joe came on the train wire at midnight. Chuck was sitting and listening dreamily to his musical Morse, when Number 3 roared by. As he reached for the key to clear it, Joe called Blair and asked Chuck if he could give a "31" to Number 3. Chuck replied by reporting her through. He listened to Joe call Gibbons, the next station west, and give the agent there the order.

Then he gave an order to Bowen, the station beyond Yantic, for Number 4, changing a previous meet. Four was losing time. Bowen acknowledged the order and reported Four out. An ominous silence seemed to settle over the telegraph circuits; not a sounder clicked. Suddenly the operator at Gibbons broke in excitedly:

"DS! DS! Number 3 didn't stop. I—I —forgot to throw the red on her!"

Joe made a splatter of garbled dots and dashes which meant rending terror. Here was a lap order, through no fault of his. He called Yantic, a day station only, called feverishly, hoping to raise the sleeping agent upstairs. But he failed. Numbers 3 and 4 were racing at each other on a single track! Ten, fifteen, fifty people would—

Chuck Benton heard every word and knew—! Grabbing the receiver from its hook, he rattled it madly.

"Bogey," he was thinking: "Parallel—half mile apart—Yantic—long run—worth try—"

Kitty's impatient voice broke in.

"For God's sake, Kitty, I want Bogey! Quick!"

In seconds Bogey himself spoke.

"Bogey, it's Chuck. A lap order, Bogey! Two passenger trains. Red lantern! Stop everything. You get me?"

There was no answer. Again Chuck rattled the hook and Kitty broke in.

"I'm sure he heard you, Mr. Benton. The receiver's off the hook at Gresham."

BOGEY, short and heavy, who never worked except when he ate, was tearing across that half mile, slipping and stumbling, a precious red light under his arm! Bogey tiring, his breath coming in gasps, his legs wearily shortening each

step! As he labored along, a faint rumble came to him.

"Yeah!" he gasped and finished the rest without a sound. "One of them! There's the station too! I'll make it all right! There she is!"

Bogey hit the B&N right-of-way as Number 3's headlight straightened out from around a curve and almost blinded him. He gained the roadbed and waved his lantern in a washout signal. Two blasts came from Three's whistle. He heard the brakes screech, turned quickly to look for Number 4, and in the light of his lantern he saw a spike. This he picked up and dashed it through the second floor window to rouse the agent.

Bogey listened as it crashed. Then he started to meet Four. Once more he heard a familiar roar and kept doggedly on his way. In the glare of her headlight he swung his lantern twice and it went out. A momentary fear nauseated him.

"Three's headlight," he thought.

Then came two short shrieks again. Bogey stepped from the track and the engine rolled by.

"I hope Three has backed up, but—!"

Four's Pullmans came up with a bang. Air screamed and fire flew from the brakeshoes as the cars passed him. Released from his tension, Bogey threw the lantern that had almost failed him—almost—at the observation car's door. He didn't know why. He heard it strike and break and then sat down on a tie to ease his feet. Resting felt good.

Slowly he turned toward the depot. The agent was up; the windows were all alight. Beyond it the two high-wheeled locomotives glared at each other, just a few feet apart. Two men were coming his way carrying lanterns.

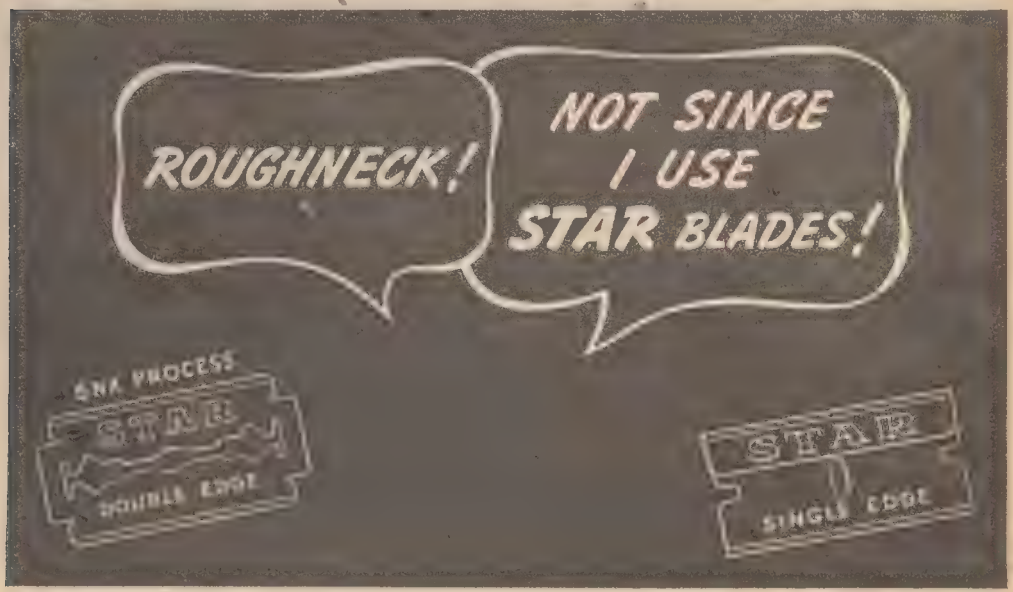
"Looking for me, I guess," he grunted. "I got no time to gas with those bozos. I'll bet my dispatcher is knocking the insulators off the poles right now, trying to raise me. What'll I tell him, I wonder? I know. I'll tell him to go jump in the creek. This is my last night in Gresham."

Chuck Benton heard Yantic tell Joe that the trains were flagged in time.

"Queer, too, nobody knew who did it," he said.

Yantic seemed pleased to have a mystery. Chuck let him keep it.

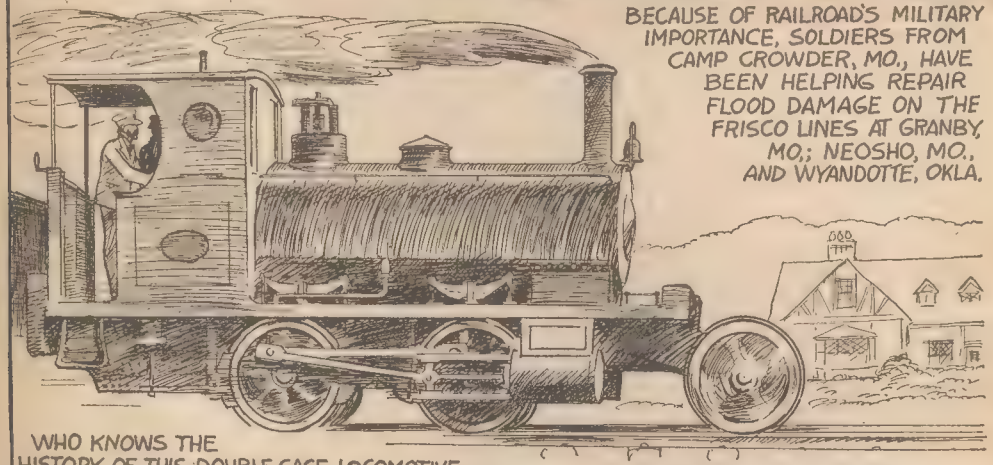
Next day, Joe remarked: "The Super was on Number 4. He brought an old lantern frame, some red glass and a spike he said he'd keep as souvenirs."



ALONG THE IRON PIKE

by JOE EASLEY

BECAUSE OF RAILROAD'S MILITARY IMPORTANCE, SOLDIERS FROM CAMP CROWDER, MO., HAVE BEEN HELPING REPAIR FLOOD DAMAGE ON THE FRISCO LINES AT GRANBY, MO.; NEOSHO, MO., AND WYANDOTTE, OKLA.

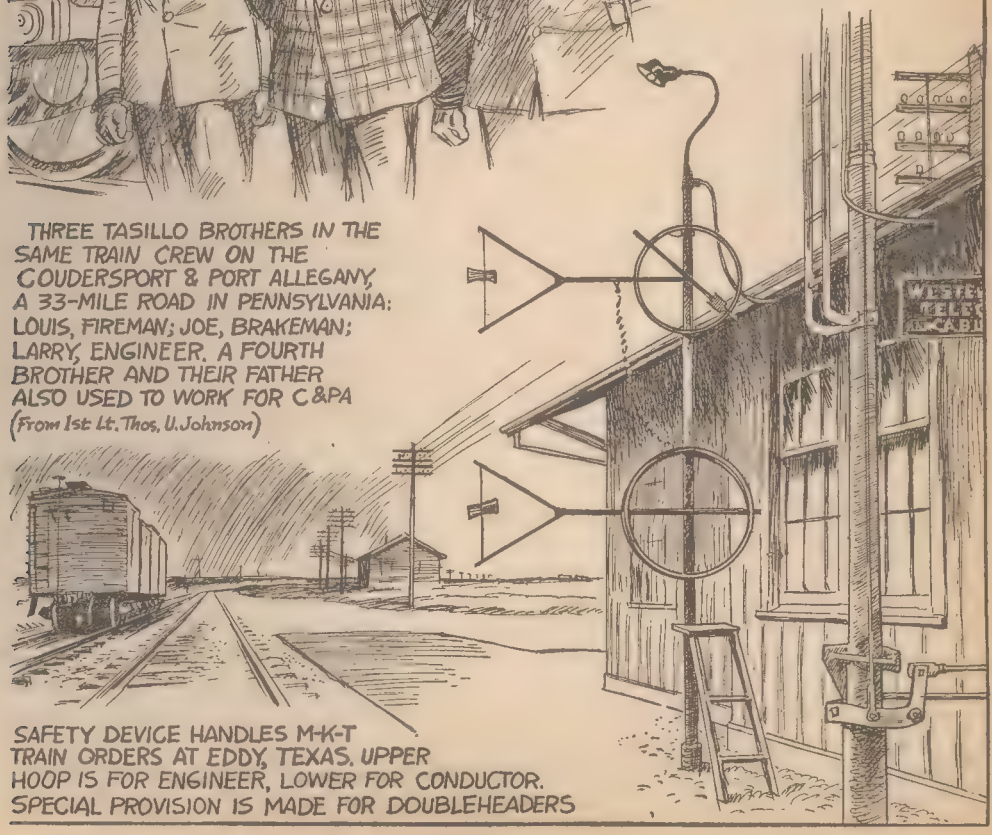


WHO KNOWS THE HISTORY OF THIS DOUBLE-GAGE LOCOMOTIVE, BUILT BY JOHN PATON AT GLASGOW, SCOTLAND? WITH WHEELS BOTH INSIDE AND OUTSIDE THE FRAME, SHE COULD RUN ON EITHER NARROW-OR STANDARD-GAGE TRACK (From James Tarbell, Jackson, Mich.)

REMODELED BOXCAR CARRIES SCHOOL CHILDREN, MAIL, FREIGHT AND EXPRESS ON THE 11-MILE CLARION RIVER RAILWAY BETWEEN CARMAN AND HALLTON, PA. SOMETIMES A STEAM ENGINE IS USED, SOMETIMES A GAS LOCOMOTIVE (From Sgt. Robt. W. Richardson)

OLD RAILROAD DEPOT AT RHINEBECK, N.Y., WAS MOVED A MILE AFTER CENTRAL NEW ENGLAND TRACKS WERE TORN UP IN 1937 AND IS NOW A GAS-STATION ANNEX LOCATED A FEW FEET FROM VINCENT ASTOR'S CHURCH
(From R. G. Cornelius, Rhinebeck, N.Y.)

THREE TASILLO BROTHERS IN THE SAME TRAIN CREW ON THE COUDERSPORT & PORT ALLEGANY, A 33-MILE ROAD IN PENNSYLVANIA: LOUIS, FIREMAN; JOE, BRAKEMAN; LARRY, ENGINEER. A FOURTH BROTHER AND THEIR FATHER ALSO USED TO WORK FOR C&PA
(From 1st Lt. Thos. U. Johnson)



SAFETY DEVICE HANDLES M-K-T TRAIN ORDERS AT EDDY, TEXAS. UPPER HOOP IS FOR ENGINEER, LOWER FOR CONDUCTOR. SPECIAL PROVISION IS MADE FOR DOUBLEHEADERS

The Big O -

WHETHER he paces the carpeted aisles of a speeding streamliner or shuffles waybills in the dingy red caboose of a local freight, the Big O—member of the Order of Railway Conductors—commands his own unit in the vast scheme of railroading.

Unknown to the average traveler, the silver-haired courtly passenger conductor once captained a manifest freight—a red-ball hotshot that held the high iron against anything but a passenger train. And before that he had skippered a "chain-gang" crew hauling heavy drags of slow stuff, battling hotboxes and crawling humbly into passing tracks to yield the main stem to other trains that were "superior" by train order or timecard, by "right, class or direction."

And even further back, this same friendly, dignified wearer of dark blue and gold braid was a grimy brakeman who rode the smoky end of the drag until he had seniority enough to park his carcass in the creaking hack and begin an intensive study of the rulebook against the day when he would be called up for promotion to the extra conductors' board.

By counting the service stripes or stars that adorn the sleeves of his immaculate uniform, you know how many years of loyalty and faithful performance of duty it took to earn them. But unless you are a railroader yourself, you cannot look behind the scenes and view the battles with blizzard and washout, the wrecks and near-wrecks, and the careless, likable comrades who didn't live long enough to run a passenger train. For in spite of thirty-odd years of "Safety First" propaganda, railroading is still a hazardous occupation and the blind Goddess of Mischance still strikes hard.

Passengers who ride only the luxury liners of the rail—the Pullman-serviced comets—never meet the conductor at his best. To do that you'll have to patronize the trundling mixed trains of the branch lines or the cindery "accommodations" that stop obligingly at every station or, seemingly, at every whistle post.

Here the conductor is more than a guy in uniform who punches your ticket. He knows and greets his regular patrons by their first names. He discusses crop conditions with the farmers, business trends with merchants and salesmen, and the labor market with small-town manufacturers. His progress along the aisles of the cindery day coaches is marked by greetings from old friends, advice to anxious travelers regarding rail connections, and the frequent dragging forth of his standard watch so that passengers may set their own timepieces by it.

When I was a youngster at the outset of a boomer career, I broke for a freight skipper known as "Wash," on the Fort Wayne line of the Pennsy. His real name was George Washington Keyes. A handsome figure he was then, with a shock of silvery hair that belied his age; he couldn't have been far past forty. Wash's voice was like an actor's and he loved poetry. You should have heard him declaim.

A wild winter night comes to mind. Howling wind drove tattered clouds across the sky, while rain squalls slashed at windows. The old caboose stove created a little island of warmth and comfort in the storm. Our train crawled up an interminable hill. We were loungin the cupola, watching the glow from the firebox door, forty car-lengths ahead, winking to the fireboy's rhythmic shoveling. There in the semi-darkness, against the click of slow-moving wheels, Wash recited the stately poem by William Knox which begins, "Oh, why should the spirit

A Tribute to the Conductor, Key Man on Any Pike

By HARRY K. McCLINTOCK

The author is a member of Western Gate Lodge 970, BRT; ex-member of El Capitan Div. 115, ORC

of mortal be proud?" That night will always remain as a high spot in my memory.

Before I left the Pennsy, Wash was promoted to the varnished wagons. Once when he was collecting tickets on a crack train, an incident occurred that gave the whole division a laugh. A certain passenger, a smartly dressed but immature young man, was talking too much. In fact, he was posing as a bigshot for the benefit of the train crew and the other tourists. His remarks were directed mostly at one pretty gal, who eventually allowed him to sit beside her and strut his stuff.

Well, as I said, Wash came along picking up fares. The pompous youth was so engrossed in himself that he had to be asked two or three times to surrender his ticket. At last, with a mutter of impatience, he reached into an inside pocket, yanked out a yard or so of mileage, and tossed it in the general direction of the conductor.

As Wash wasn't expecting any such move, the ticket fell at his feet. Was his urbanity disturbed? It was not. The courtly old rail stooped over, retrieved the ticket, examined same with care and punched it. Then he dropped the thing right back on the carpet!

The brash young man wrote a sizzling letter of complaint to the General Manager. They said the G.M. threw it in a waste basket; he knew Wash.

I WISH I could remember the name of a certain conductor on the Malad Valley branch of the Oregon Short Line around 1911. One trip he acquired a loud-mouthed passenger whose language, when the conductor tried to quiet him, was lurid and insulting.

At Brigham City, Utah, where the branch connected with main-line trains, the skipper got even. He deposited his cap and gold-trimmed jacket in the ticket office, invited the belligerent passenger to step out into the street, and administered a thorough shellacking.

The passenger sued the OSL for damages, but the case was thrown out of court when the conductor produced witnesses to prove that the battle had not taken place in railroad property and that he had been relieved from duty by telegram from the chief dispatcher for thirty-minutes—which was long enough.

Photo from George M. Hart, Doylestown, Pa.

BRANCH-LINE SKIPPER, Lykens, stands on the rear platform of his Reading mixed train at Lorberry Creek Junction, Pa.

Bob Leu, an old-timer who had lost a leg in train service, was secretary of El Capitan Division of the O.R.C.—a division to which I belonged—and assistant depot master at the Espee's Third and Townsend Streets station in San Francisco. Bob was one of the kindliest men I have ever known. Not only did he maintain a meal ticket in a neighboring restaurant for the hungry boomers but he could, and would, "square" you for a ride on almost any train out of San Francisco or Oakland.

He also kept in touch with small independent roads where an occasional job might show up. There used to be a flock of such pikes in California. For instance, the Napa Valley and the Sacramento Northern, both juice lines; the Sierra Railway out of Oakland; the Pajaro Valley, at Watsonville, and the Pacific Coast Railway at San Luis Obispo. All these were slim-gage lines, and all were good for a job at times. The Diamond Match Company worked something like twenty railroad crews out of Chico in their extensive logging operations.

Bob knew the officials of such pikes. They'd give him a tip-off when new crews were about to be put on or when a competent rail was needed in a hurry. A lot of battered old-timers had reason to thank Bob Leu for a chance at a job where there was no physical examination and the Super wasn't too finicky about service letters and past performance.

The Santa Maria valley in California is now a great military cantonment and training center; in my boomer days it was a vast expanse of sugar beets, grain, and beans. There was a sugar factory at Betteravia, and a brand new oil field had been opened in the hills back of Santa Maria and there was an immense rancho near Nipomo where one of America's largest seed concerns grew the flower seed for a million gardens. Hundreds of acres blossom all through the summer season and that end of the valley smelled like Eden.

The old Pacific Coast narrow-gage, connecting with the Southern Pacific at San Luis Obispo, Calif., did an exceedingly profitable business in the days before concrete highways and ten-ton trucks. I broke on the Pacific Coast and I saw, as brakeman on a work train, the first standard-gage rail laid into Santa Maria, Calif.

The Pacific Coast had an electrified

"THE PENCIL AND THE BOOK"—that's the title of a famous poem about a freight conductor

Photo (made at Reading Terminal, Phila.) from George M. Hart

FIFTY YEARS AGO the walrus mustache was standard equipment. There's only one clean-shaven fellow in this bunch of Philadelphia & Reading passenger conductors, North Penn Division, and he looks positively naked

branch line, connecting with the SP at Guadalupe, that offered the only passenger service meeting all the big system's Coast Division trains. And they assessed the passengers seventy-five cents for a nine-mile haul!

Sam Gillespie, a veteran rail who had worked from Canada to Mexico, was the conductor on this juice line. Between trips, the combination baggage and passenger car rested in the middle of Santa Maria's main street. This served as a sort of informal clubhouse where doctors, lawyers, merchants, ranchers, and oil men dropped in to meet friends or to join in the never ending political discussion in which Sam delighted.

The old conductor and his battered electric car seemed permanent fixtures in the life of the town and the valley. Alas, there came a day when the Pacific Coast Railway and Sam Gillespie severed relations—or "split the blankets" as the old Western saying goes. Another skipper came down from San Luis Obispo to take charge. The Main Street Political Forum dissolved. Disconsolately, its erstwhile members loafed on the street corners.

Some weeks later the local newspaper spread a front page announcement of the inauguration of a new passenger service to Guadalupe, at reduced rates. At the same time there appeared a big, shiny, new bus on the streets of Santa Maria; and at the wheel sat Sam Gillespie. Old cronies flocked around. Sam gave them a free ride to Guadalupe and return. They were enthusiastic about the bus; they were enthusiastic about Sam, and the low fare helped to swell the chorus of acclaim.

The juice line competed hopelessly for about ninety days and then folded up. Now for the moral of our little tale. The Pacific Coast Railway was owned by the Pacific Coast Steamship Co., which had built it as a feeder in years gone by. Well, the Great Northern Railway system bought Pacific Coast Steamship and the slim-gage with it. Some brass hat came down out of the North on an unheralded

tour of inspection. It seems he didn't like the way Sam Gillespie was running the branch line, and so ordered his dismissal.

The branch had been turning in a nice profit. All this was lost when Sam was fired. Which goes to show that one conductor may carry a lot of prestige and goodwill on his shoulders. Too few officials realize to what extent their trainmen provide contact between the railroad company and the public.

LIKE the captain of an ocean liner, the railroad conductor is responsible for the comfort and safety of his passengers. Children and old ladies make long journeys under his watchful care. I have known cons to allow little boys to "help" him collect tickets—on an unforgettable occasion, it happened to me.

A quiet word from the conductor has been known to open the eyes of a sucker who was about to lose his bankroll to a pair of tinhorn gamblers aboard the train.

Sometimes the conductor spots a giddy girl of high school age, accompanied by a man considerably older and very smooth indeed. To the girl the ride is bright with romance, but to the conductor the situation smells. A wire is dropped off at some station, and when the train pulls into it the couple is likely to be met by an unobtrusive reception committee that includes a friendly matron from the Traveler's Aid Society and a tough plain-clothes detective from police headquarters. It is touching, indeed, to see how glad these dicks are to renew acquaintance with the man in the case. The girl is cared for and shipped back home. As a rule she is shocked out of her goofy attitude of trust in all mankind. And usually she never knows the part her conductor played in the little drama.

In some European countries the passenger trainmen go after tips with the effrontery of a greasy waiter in a clip joint. They are fawningly obsequious if you tip them; arrogant and unobliging if you don't. On the continent where class distinctions make the whole social fabric, the trainmen deliberately lower themselves.

The American passenger trainman regards himself as the social equal of any of his passengers. He has solved the

BIG O of the *Daylight Limited* hands up orders

Photo by S. B. Risdon, Watsonville, Calif.

SINGING CONDUCTOR, Matty Balling of the Long Island Rail Road, entertains draftees as they board trains at Penn Station, New York City

problem—if there ever was a problem—of rendering service without servility. He springs to the aid of a woman struggling with unwieldy luggage, drops off a telegram for a worried seaman, recommends a reliable hotel to someone with a thin pocketbook, or digs up timetables for a bewildered pretzel-baker.

Passengers accept this help gratefully, with no thought of giving a tip. This is as it should be. No rail should have to depend upon gratuities. But in my humble opinion, trainmen are underpaid. We have recently been exposed to a clamor from radio commentators and newspaper and magazine writers about the alleged hampering of efficient train operation by Brotherhood contract restrictions and "featherbed" rules.

None of these critics has ever climbed the side of a boxcar at thirty below zero or swung a lantern in "highball" or "washout." They haven't the slightest conception of the extra amount of work and responsibility that has been sawed off on the railroader since this Nation was plunged into war. They do not know that these "restrictive" laws and Brotherhood rules were enacted by legislatures or negotiated by grievance committees in an honest effort to lessen the toll of death and injury to trainmen and passengers.

And let me state right here that no legislature ever passed a "restrictive" law involving rail employes without due consideration of all factors involved. To doubt this is to believe that our giant railroad systems are politically impotent. Nor can I remember any time or occasion when a mighty railroad corporation bowed meekly before the unjust demands of a swaggering grievance committee.

I will bet my latest War Bond that these writers get their inspiration from High Sources in the shadowy realm of railroad finance. I'll wager, furthermore, that you could find very few real railroaders, up to and including division superintendents, who would agree with them.

Our Brotherhoods are among the world's strongest labor organizations and are justly proud of their long record of achievement and fair dealing.

THERE was a year, rather recently, when not one single passenger was was killed or injured on an American railroad, while in the matter of accidental death or personal injury to employes that same year established an all-time low. What of the present? Headlines in the newspapers tell you that American trains are not as safe as they were. Instead of "featherbeds" we have stretchers.

My hat is off to the Big O who is running a freight or passenger train today. Experienced brakemen have entered military service in thousands. Railroads must compete with war plants and shipyards for replacements—at a wage that lags behind the general standard for skilled workers.

Some roads carry standing ads in the newspapers for "student" brakemen or switchmen up to forty-five years of age! It's a cinch that the brakemen hired today are far from being as competent as the shacks who joined the Army.

There are single-track roads where it is practically impossible right now to get a freight train over any division within sixteen hours. Firemen have been "set up"

Photo by Stanley Borden, 23 Moran St., Halifax, Nova Scotia

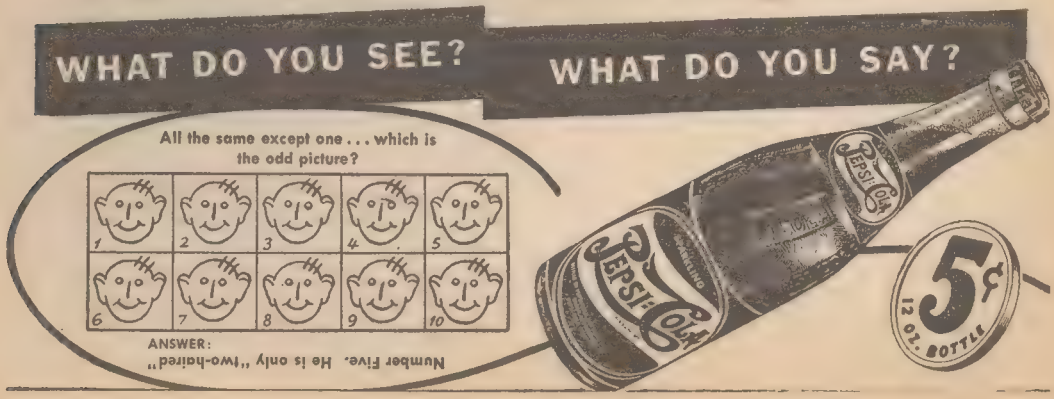
IS THE SKIPPER in this car a freight or passenger conductor? This all-purpose caboose, No. 32 of the Dominion Atlantic Railway, at Halifax, N. S., in 1938, has a small section for passengers as well as the regular cupola

and moved over to the right-hand side with as little as two and a half years of experience. Pity such a hogger who has to clear the time of all scheduled trains and meet a swarm of extras, who climbs into his cab with a fist full of tissues and finds that neither the tallowpot nor the head brakeman knows what a train order should look like.

Longingly he ganders back, at times, to the crummy as it bobs along at the rear of a hundred cars. He'd like a word of advice or comfort from the Big O. But, alas, that worthy is afraid to trust his parlor shack to do an adequate job of flagging when it is necessary, or to line the gate when pulling out of a siding. To make sure his train is properly inspected, he does most of the inspecting himself. He must trust the harassed hogger to keep out of trouble—or "pull the air" on him if he should overlook his hand or "run a meet."

Should a journalist or radio commentator step up to a freight conductor to bait him on the subject of "featherbed" rules, it is extremely likely that the answer would be a heartfelt punch in the nose. This also goes for passenger men, whose trains are now hauling more cars and more people than ever before.

What the future has in store for the conductors of America is anybody's guess. One fact we do know. The Big O is still a key man in labor circles and in the railroad industry. He is a vital source of contact between his company and the public whose freight and passenger business pays his wages.

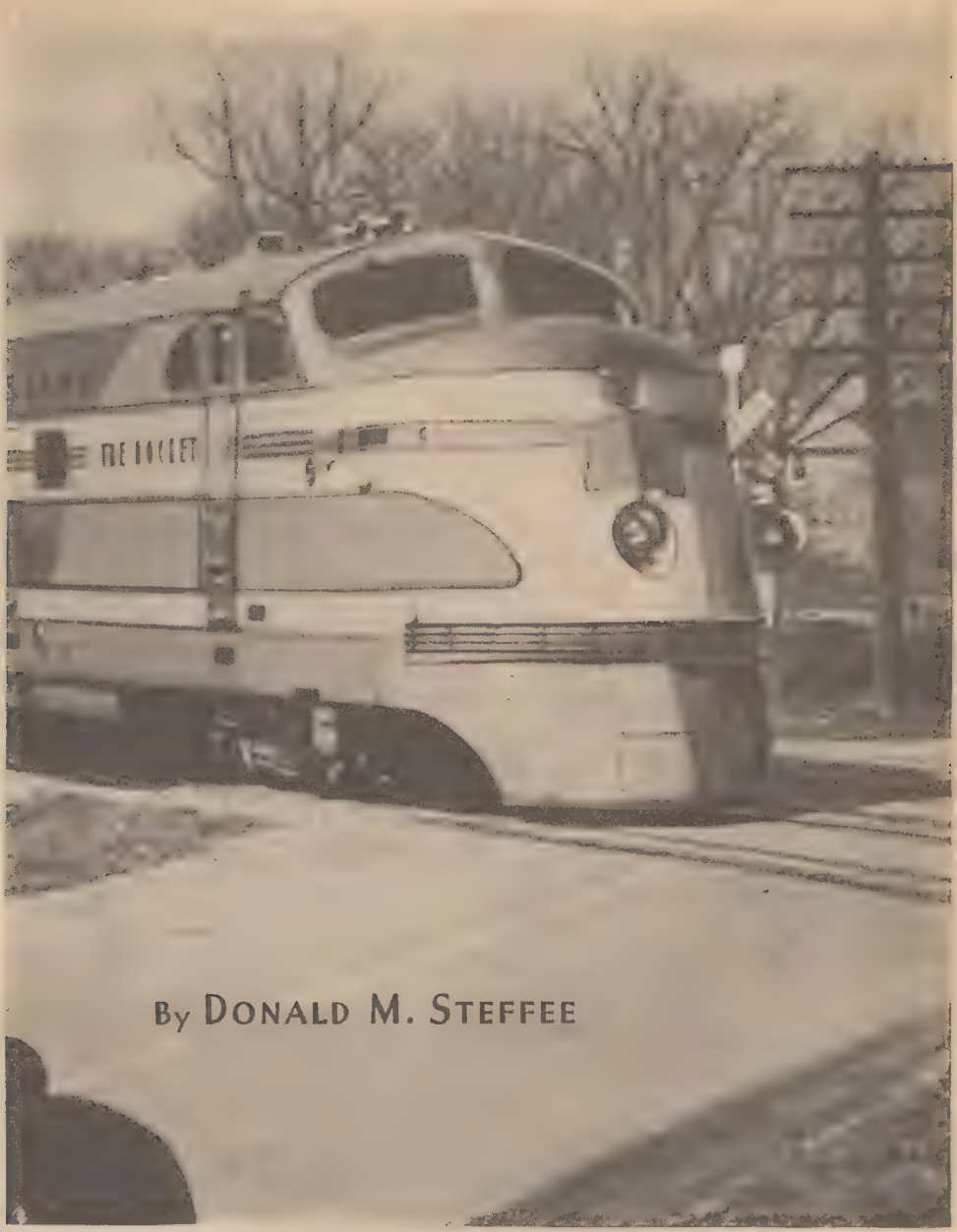


Annual Speed Survey

OUR study of passenger-train speeds for 1943, based not upon public timetables but upon the even more accurate employes' timecards, discloses 14.2 percent less mileage of start-to-stop runs at a mile a minute or faster in the United States and Canada than was indicated by similar data for the peak year, 1941.

The 1941 figure was 85,645 miles of runs at 60 m.p.h. or better. If you include the changes made in January, 1942, by the inauguration of full winter service between points along the Eastern Seaboard, the Midwest and Florida, you reach the amazing total of about 92,000.

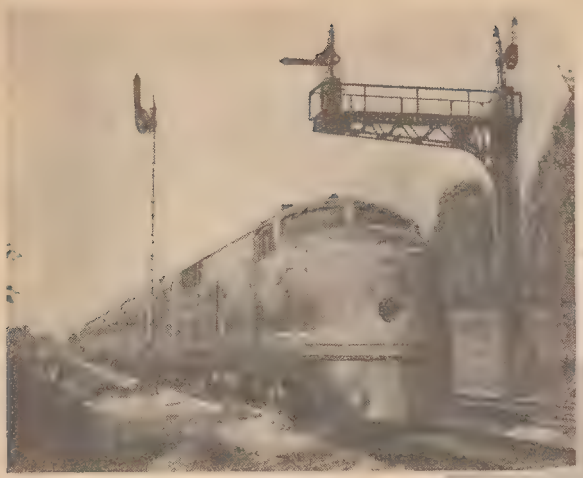
Turn now to the 1943 figure, 73,890. Does that show a retrogression? The an-



By DONALD M. STEFFEE

swer is No. What appears to be an ebb is really a new high-water mark, a triumph beyond anything else in railroad history; and we'll tell you why.

The rail carriers today are hauling the greatest load of all time. They are moving men and materials to the training camps, to the war plants, and to the Atlantic and Pacific tidewater for shipment overseas. They are transporting not only war goods and personnel for the Allied Nations but also civilian merchandise and passengers. The traffic is particularly heavy because there's a shortage of gasoline for highway travel and because ships have been withdrawn from coastwise service. Yet our railroads are carrying the burden efficiently—despite the addi-



MIDWEST, West and East: The Rock Island *Rockets* (left), the Espee's *Daylights* (below) and the *Erie Limited* (next page). Vic Neal of Wellsville, N. Y., says he almost froze to death waiting to make this shot of the *Erie Limited* one December day when she was late

Photo at left by Vernon Seaver

Photo by S. B. Risdon, Watsonville, Calif.

tional handicap of being unable to buy the new equipment they need urgently. Without the support of railroads on the home front, victory for our cause would be impossible.

Yes, the job the old iron horse is doing is a saga that school children of the future will study in their history books. When we consider all this, and add to it the fact that passenger trains of the States and Canada in a wartime year can still roll up a total of nearly 75,000 miles of start-to-stop runs at not less than 60 miles per hour, besides portions of other runs where that speed is reached or exceeded, we realize that the 1943 speed record, so far from being a slip-up, is really a shining tribute to railroad men and equipment. Private management can turn in a great performance when it's given half a chance.

It is true that arrival bulletin boards in big city terminals today are somewhat spotty as contrasted with the almost unbroken "on time" listings a few years back. Shallow observers might infer from these chalked-up figures that the roads are unable to operate rapid schedules under present conditions. Such is not the case. A peep behind the scenes would convince even the most skeptical that plenty of hotshots are stepping right along on the card —swift trains carrying troops, priority freight, and especially fuel oil.

A business man of Washington, D. C., who journeyed many thousands of miles by rail in the States and Canada last year, sent us a log of his travels. The high percentage of "on time" trains shown by this log speaks well for railroads in wartime.

"Not once did I have a Pullman reservation in which a mistake had been made," he adds. "I always went to bed when I wanted and never found anyone with a duplicate ticket to my berth. Aside from four or five occasions when men of the armed forces had rightful precedence in dining-cars, I had no difficulty in getting meals reasonably on time."

Yes, it's an amazing job, beating wartime traffic problems. Take station work alone. With more people getting on and

off of trains and more mail and baggage to handle minutes and hours may have to be recouped, or schedules altered.

THAT passenger-train speed remains at so high a level, with the staggering burden placed on the shoulders of the rail giant, is attributed to two big underlying causes.

The first is that fast service, which in former years was mainly a convenience to the traveling public, is mandatory today. To move several times the number of passengers carried but a short decade ago with considerably fewer cars and engines—admitting that modern locomotives are far more powerful and efficient than those of 1930—the equipment must be put to its utmost possible use. This obviously means that more round trips must be made in any given period of time than was the case formerly. More rigid inspections for hotboxes, flat wheels and other wear and tear of the rolling stock is required at the terminals and enroute. Thus it is essential that "varnished" trains be expedited as much as possible.

Besides, the faster the passenger schedules, as a rule, the longer the tracks will be clear for redball war freight.

A case in point is the retention of all the famous streamliners—except where patronage increased far beyond their capacity and new steam trains had to be added—and the modest deceleration of schedules so as to permit additional time for the far more numerous meeting of and passing other trains encountered today. Operating these limiteds to utmost capacity releases hundreds of standard cars and many locomotives from regularly assigned service, enabling the equipment to be sent to heavy travel fronts wherever they may develop.

The second important reason for the present high level of train speed in the States and Canada has to do with postwar planning. A new spirit of enterprise, looking into the future, marks the rail carriers. You have a feeling that the iron horse, strong and dependable though he is now, will prance in an even more lively fashion after the peace treaties have been signed. This state of expectancy contrasts with the almost lethargic smugness of the railroads twenty-five or thirty years ago, before the competition of highways, air lines and pipe lines had begun to hurt.

Going still further back, to the turn of the century, we find that North American passenger trains, while slower as a whole than those of Great Britain and France, were pre-eminent in the long-distance field. Besides that, they boasted many brilliant shorter runs. Among these might be mentioned the world's fastest railroad trip, between Camden and Atlantic City, N. J., 55½ miles, which was covered in 50 minutes over the old Philadelphia & Reading route.

The *Empire State Express* was then in the full flush of fame and the 18-hour New York-Chicago schedules were the envy of the world. At the same time, the slogan "Your watch is your timetable" advertised a fine fleet of Jersey City-Philadelphia flyers via the Jersey Central-Reading Lines, which for all-around excellence was mighty hard to beat. The Reading *Crusader* today is doing a noble job of serving the same territory.

In those days, too, the *Overland Limited* won renown as the fastest train by hours between the Midwest and the Pacific Coast. Such cities as Buffalo, Cleveland, Pittsburgh and some others of lesser importance were connected by schedules which, in several cases, have never been approached since, even during the great speed-up of the past decade. In other instances it is only by means of a streamliner that the times of forty years ago have been beaten, while other trains in the service are still below their one-time level.

WITH 1912 was ushered in the "dark ages" when some ultra-cautious rail officials seem to have been obsessed with the notion that swift passenger service was neither economically sound nor desired by the public. New York-Chicago schedules were lengthened to 20 hours, there to stagnate for two decades. No Lehigh Valley train since 1900 has ever matched the schedule of nine hours and 31 minutes of the *Black Diamond Express* from Buffalo to Jersey City at the beginning of her career. This sad story could be continued indefinitely.

What a different picture unfolded in 1936! Battling sharp competition from other forms of transportation during the worst financial and industrial crises in our history, the railroad came through as the home front is doing today. The magnificent speed-up, which started in 1932 and was gathering momentum, soon engulfed the entire U. S. and Canada. The 29,301 miles of daily "mile-a-minuting" of which we were so proud in 1936 was nearly to triple itself five years later. The little *City of Salina* and *Pioneer Zephyr* had just been established and given birth to the famous *City* and *Zephyr* fleets of today. Santa Fe's squadron of sleek streamliners and the *Rockets, Eagles* and other high-speed "families" were still in the building or blueprint stage. The keen rivalry of the *Hiawatha,* the *400* and the *Detroit Arrow* for the world's steam speed crown was creating new records.

That vast territory west of the Mississippi, which had no really fast trains in the pre-1912 era, was outstripping the East in individual performances, although presenting nothing like the all-round record of the great caravans that flash between New York and Washington, or to and from Florida during a normal winter tourist season, or the New York Central's mighty fleet of long-distance steam speedsters.

Coming to 1943, we discover that the tide has ebbed but little despite two years of wartime operation. While most scintillating runs of former years have been somewhat slowed, as was to be expected, the Burlington's northbound *Morning Zephyr,* No. 21, still proudly wears the world's speed crown, with its 84-m.p.h. dash from East Dubuque to Prairie du Chien.

Our study of the Canadian National for the past twelve months evokes a surprise. The *Continental Limited,* in both directions between Montreal and the Pacific Coast, comes into the tabulation with short sprints between Lachine and St. Annes in the Montreal suburban area. Certain other trains also make this trip

EVEN BEFORE the Great Speed-up, celebrities traveled fast and luxuriously. The bearded gentleman seated at the right, in his private car, was Benjamin Harrison, our 23rd President

at better than 60 m.p.h., but as they run Saturdays and Sundays only, they are not included. Virgin territory for high speed is opened in southern Ontario, where No. 14, the *International Limited,* covers the 58.9 miles from Sarnia to London in 57 minutes. These new runs help to more than double Canadian National's representation over 1942 in our list.

Passing over New England, where the situation is virtually unchanged, we come to the New York Central. This, with its subsidiaries, suffered the greatest losses in 1943, dropping from 16,566 miles a year ago to 13,211. Unlike most of the systems with large representation, the

Upper photo by Vernon Seaver, 223 S. Wabash, Chicago; lower by Richard J. Cook, 3402 W. 135th St., Cleveland

SPEED GIANTS: *The Californian*, Rock Island-Southern Pacific, and *Empire State Express*, New York Central

Central has very few "short spurts" in its schedules. Its huge total is comprised almost entirely of the long sweeps of from 80 to more than 175 miles at a clip between division points mostly at around 62 to 64 m.p.h. made by its flyers.

The lengthening by an hour of the best New York-Chicago schedules and the deceleration of other trains cause many of these long runs to fall short of our minimum standard. Even the *Twentieth Century Limited,* which in other years was represented for the entire 918.9 miles between Harmon and Englewood, has surrendered a lot of mileage. To some extent, the loss has since been regained in the New York-Chicago service, but the changes of time were made too late to be included in the 1943 survey.

It is rather bewildering to speculate on how the Pennsy finds the rolling stock and open place in her timecard for the flotilla of new trains placed on the New York-Washington run. Despite additions of from five to fifteen or more minutes to the running times of many of these flyers, the aggregate high-speed electric mileage of the system has jumped by no less than 47 runs and 2687 miles over the 1942 figures.

Lengthening of schedules to the Midwest has caused much loss in steam mileage. Here, too, the service has been expanded by a second *Liberty Limited* on the Washington-Chicago run, a new *Red Arrow* between America's capital and her heavy war industries city, Detroit, and other new trains added to alleviate the congestion of the Pennsy's far-flung main miles. More power to the system's K-4s, continue to demonstrate ageless capacity.

UNION PACIFIC's streamliners, operated jointly with the Chicago & North Western and the Espee, are carrying more passengers than ever. Little change has been made in their schedules since last year's survey which included the deceleration of the Denver trains

The Baltimore & Ohio and its affiliated lines, the Central of New Jersey and Reading Co., are other heavy losers of speed. The parent company has given up all but two short spurts on its line east of Washington. The second named road passes from the 60 m.p.h. picture, while the Reading, once proud claimant of the world's fastest train, has but a solitary mile-a-minute run of only 21.7 miles.

TRAVEL to and from Florida always threatens but never quite reaches the saturation point. Schedules there have been further slowed in an effort to keep some semblence of the "advertised" in getting regular trains past and around the caravans of troop specials and munition hot-shots.

Another bright spot appears as we welcome Chesapeake & Ohio into the ranks of speedsters. This road has nearly doubled its through service by operating the trains from Phoebus, the terminal for Norfolk, Newport News and Old Point Comfort, through to Cincinnati and the Midwest, instead of consolidating them at Gordonsville, Va., with the trains from Washington, as was done in the past. Thus all principal trains now have a "Virginia section" and a "Washington section." It is the Virginia section of the *George Washington* that covers the 51.2 miles from Mayville, Ky., to South Portsmouth in 51 minutes and brings the first mile-a-minuter to the Blue Grass State.

The sparkling performances in those hotbeds of speed between Chicago and Milwaukee, the Twin Cities and South Bend, have lost a little of their luster in slight easing of time by all the roads concerned. The North Shore and South Shore electric systems, both lined with mushrooming war industries, to say nothing of the Great Lakes and other Naval and military stations, have found it necessary to slow all trains by from four to ten minutes or so. Despite these adjustments, the South Shore scores its first 70 m.p.h. timing by stepping across the sand dunes from Davis to Lake Park at 71.5 m.p.h with train No. 41.

Fifteen minutes have been added to the crack Twin Cities time, and a half hour to those on the Omaha run via both the Burlington and Milwaukee roads. However, all these trains continue to show

some smart performances, several still above the 75 m.p.h.

SINCE last year's survey was compiled after the Denver and Pacific Coast streamliners had been decelerated, there is little to note in this area. Most of the recent adjustments have been made in the schedules of the heavy, standard-equipped transcontinental trains, which accounted for but a small percentage in previous tabulations.

The Rock Island revamped its service to the extent of restoring a long absent double daily service between Chicago and Denver. It established a steam train on an evening departure from Chicago, with midnight arrival the next day in Denver, and a mid-afternoon departure and evening arrival in the reverse direction. While the pace of this train is leisurely for most of its trip, the groundwork has undoubtedly been laid for a worthy running mate to the *Rocky Mountain Rocket* as soon as the great speed-up resumes its forward sweep.

While the Missouri Pacific has had to lengthen time on its St. Louis-to-Texas routes, the *Colorado Eagle* maintains its schedule of a year ago with but few readjustments. In its dash from Eads to Horace, 55 miles in 41 minutes, it claims the only other 80 m.p.h. schedule now on record.

Our 1942 prediction that the *General Pershing Zephyr* would be withdrawn from the St. Louis-Kansas City run proved to be well founded. A steam train on a slower timing now furnishes the daylight service over the joint Alton-Burlington route.

December first was chosen as the closing date for our 1943 speed entries. Space limitations prevent our showing any but the top performances with all types of power for each road represented in the list of individual runs. However, this listing is amplified into four groups according to distance: namely, start-to-stop runs of over 200 miles, 100 to 200 miles, 50 to 100 miles and less than 50 miles. Thus we can do justice to many fine performances over long distances, which were excluded last year because shorter runs on the same road were staged at a bit higher speed. A much clearer picture of what is accomplished over varying distances is thus presented.

Photo from Vernon Seaver

BURLINGTON's *Zephyr* trains, like this Denver-bound flyer, are still high up on the nation's speed ratings. Though the Kansas City-St. Louis streamliner has been withdrawn, the *Morning Zephyr* to Minneapolis holds the top with an 84 m.p.h. dash on its route

THE BLACK SMOKE PLUME you see here is a result of poor combustion in the firebox of a Pacific-type locomotive, Erie No. 2902, which the Atlantic Coast Line borrowed to haul a local train between Richmond and Petersburg, Va. This engine completes two round trips a day without recoaling. The speed-shot was made at Richmond by a Seaboard Air Line fireman, Wiley M. Bryan, M-2-A Cameron Court Apt., Raleigh, N. C.

Fastest Start-to-Stop Run on Each Road Operating Mile-a-Minute Schedules*

**Where a road uses more than one kind of motive power, top performance is given for each type*

Over 200 Miles

Railroad	Train	From	To	Miles	Time (min.)	Speed (mph)	Motive Power
Santa Fe	21 *El Capitan* (a)	Dodge City	La Junta	202.4	166	73.2	Diesel
Southern Pacific	101 *City of San Francisco* (d)	Carlin	Sparks	288.3	264	65.5	Diesel
Burlington	39 *Exposition Flyer*	McCook	Denver	254.2	235	64.9	Diesel
Union Pacific	103 *City of Los Angeles* (d)	Salt Lake City	Caliente	324.5	321	60.8	Diesel

100 to 200 Miles

Pennsylvania	1 *Chicago Arrow*	Fort Wayne	Gary	123.0	97	76.1	Steam
Burlington	10 *Denver Zephyr*	Galesburg	Aurora	124.5	99	75.5	Diesel
Santa Fe	22 *El Capitan* (a)	Dodge City	Hutchinson	120.2	100	72.1	Diesel
Union Pacific	2, 102, 104 *Cities of Portland* (e), *San Francisco* (d), *Los Angeles* (d)	North Platte	Grand Island	137.2	115	71.6	Diesel
Chicago & North Western	2, 102, 104 *Cities of Portland* (e), *San Francisco* (d), *Los Angeles* (d)	Omaha	Boone	149.0	130	68.2	Diesel
Pennsylvania	A-152 *Advance Congressional*	Baltimore	Newark	174.5	155	67.5	Electric
Missouri Pacific	11 *Colorado Eagle*	Hoisington	Scott City	123.8	111	66.8	Diesel
New York Central	2, 25, 609 *Pacemaker, 20th Century Ltd., Prairie State*	Elkhart†	Toledo†	133.0	120	66.5	Steam
Ft. Worth & Denver City; Chicago, Rock Island & Gulf	3 *Sam Houston Zephyr*	Teague	Houston	152.0	138	66.1	Diesel
Santa Fe	7 *Fast Mail Express*	Hutchinson	Dodge City	120.2	110	65.6	Steam
Michigan Central	48 *Detroiter*	Windsor	St. Thomas	109.6	101	65.2	Steam
Seaboard Air Line	44 *Silver Meteor* (EC)	W. Palm Beach	Sebring	102.6	95	64.8	Diesel
Chicago & Eastern Illinois	98, 99 *Dixie Flagler* (b)	Danville†	Englewood†	116.6	110	63.6	Steam
Southern Pacific	14 *Sunbeam*	Ennis	Hearne	110.2	104	63.6	Steam
Big Four	3 *James Whitcomb Riley*	Cincinnati	Indianapolis	108.9	105	62.3	Steam
Atlantic Coast Line	375 *Havanna Special* (WS)	Richmond	Rocky Mount	123.9	120	61.9	Diesel
Union Pacific	6 *California Mail*	Cheyenne	Sidney	102.0	100	61.2	Steam
Baltimore & Ohio	8 *Shenandoah*	Gary	Garrett	116.8	116	60.4	Diesel

50 to 100 Miles

Burlington	21 *Morning Zephyr*	East Dubuque	Prairie du Chien	54.6	39	84.0	Diesel
Missouri Pacific	12 *Colorado Eagle*	Eads	Horace	55.0	41	80.5	Diesel
Chicago & North Western	112 *City of Denver*	Carroll	Boone	52.3	41	76.4	Diesel
Union Pacific	112 *City of Denver*	La Salle	Sterling	93.6	74	75.8	Diesel
Milwaukee	6 *Morning Hiawatha*	Sparta	Portage	78.3	62	75.7	Diesel
Milwaukee	103 *Midwest Hiawatha*	Delmar	Marion	53.9	44	73.6	Steam
Rock Island	7 *Rocky Mountain Rocket*	Iowa City	Grinnell	65.9	55	71.9	Diesel
Pennsylvania	152 *Congressional*	N. Philadelphia	Newark	76.0	64	71.3	Electric
Santa Fe	21 *El Capitan* (a)	Joliet	Streator	52.1	44	71.1	Diesel
Pennsylvania	12, 56, 57 *Mid-City Express, Liberty Limited*	Plymouth†	Fort Wayne†	64.1	55	69.9	Steam
Illinois Central	51 *Green Diamond*	Kankakee	Clinton	92.7	81	68.7	Diesel
Santa Fe	10 *Centennial State*	Syracuse	Garden City	51.5	45	68.7	Steam
Chicago & Eastern Illinois	22 *Zipper*	Watseka	Chicago Hts.	50.9	46	66.2	Steam
Big Four	11 *Southwestern Limited*	Sidney	Muncie	65.9	60	65.9	Steam
New York Central	90 *Advance Forest City*	Englewood	South Bend	78.8	72	65.7	Steam
Seaboard Air Line	43 *Silver Meteor* (EC)	Savannah	Thalmann	66.4	61	65.3	Diesel
Southern Pacific	13 *Sunbeam*	Houston	College Station	93.4	87	64.4	Steam
Alton	3 *Abraham Lincoln*	Joliet	Bloomington	89.4	84	63.9	Diesel
Burlington	48 *Blackhawk*	Prescott	Alma	56.2	53	63.9	Steam
Erie	16 *Midlander*	Hammond	Rochester	80.3	76	63.3	Steam
Rock Island	10 *Chicago Limited*	Grinnell	Iowa City	65.9	63	62.8	Steam
Canadian National	15 *International Limited*	Belleville	Port Hope	50.2	48	62.7	Steam

Photo by Railroad Photographic Club

THROUGH CANADIAN EXPRESS on the Canadian Pacific leaving terminal at Buffalo, N. Y., with engine 2715

Baltimore & Ohio	26	*Columbian*	Lapaz	Garrett	61.7	59	62.7	Steam
Boston & Maine	134	*Streamliner*	Biddeford	Boston	99.1	95	62.6	Diesel
Baltimore & Ohio	5	*Capitol Limited*	Deshler	Garrett	65.6	63	62.5	Diesel
Chicago & North Western	88	*San Francisco Challenger*	Council Bluffs	Carroll	92.8	89	62.5	Steam
Canadian Pacific	19	*Canadian*	London	Chatham	64.2	62	62.1	Steam
Wabash	21	*Bluebird*	Englewood	Forest	85.9	83	62.1	Steam
Florida East Coast	4	*Chicago Streamliner #*	Daytona Beach	St. Augustine	53.7	52	62.1	Diesel
Michigan Central	324	*New York Limited*	Essex (c)	Ridgetown (c)	51.5	50	61.8	Steam
Atlantic Coast Line	2	*Champion*	Jacksonville	Nahunta	66.8	65	61.7	Diesel
Lehigh Valley	8	*Maple Leaf*	Depew	Geneva	93.2	92	60.8	Steam
Pennsy.-Rdg. Seashore Lines	159	*Atlantic City Express*	Broadway	Atlantic City	57.3	57	60.3	Steam
Chesapeake & Ohio	42	*George Washington* (VS)	Maysville	S. Portsmouth	51.2	51	60.2	Steam

Less Than 50 Miles

Burlington	21, 23	*Twin Cities Zephyrs*	North LaCrosse	Winona Jct.	26.6	20	79.8	Diesel
Chicago & North Western	156	*City of Milwaukee 400*	Kenosha	Evanston	39.6	30	79.2	Diesel
Milwaukee	100	*Afternoon Hiawatha*	New Lisbon	Portage	43.1	34	76.1	Steam
Rock Island	501	*Peoria Rocket*	Joliet	Morris	21.5	17	75.9	Diesel
Missouri Pacific	11	*Colorado Eagle*	Ottawa	Osage City	32.3	26	74.7	Diesel
Chicago, S. Shore & S. Bend	41	*South Bend Limited*	Davis	Lake Park	14.3	12	71.5	Electric
Ft. W. & Denver C.; CRI & G	18	*Texas Rocket*	Teague	Corsicana	35.7	30	71.4	Diesel
Chicago, N. Shore & Milwaukee	437	*Milwaukee Limited*	Skokie	Deerpath	15.4	13	71.2	Electric
Union Pacific	111	*City of Denver*	Fremont	Columbus	45.2	38	70.9	Diesel
Milwaukee	6	*Morning Hiawatha*	Portage	Columbus	28.2	24	70.5	Diesel
Illinois Central	53	*City of Miami* (b)	Champaign	Mattoon	44.7	38	70.4	Diesel
Santa Fe	12	*Chicagoan*	Galesburg	Chillicothe	47.5	41	69.6	Diesel
Florida East Coast	4	*Chicago Streamliner #*	Vero Beach	Melbourne	33.6	29	69.5	Diesel
Pennsylvania	208	*New York Express*	Trenton	Newark	48.1	42	68.7	Electric
Seaboard Air Line	44	*Silver Meteor* (EC)	Opa Locka	Hollywood	10.3	9	68.7	Diesel
Illinois Terminal	91	*St. Louis Limited*	Mindale	Union	9.6	8 1/2‡	67.8	Electric
Canadian National	2	*Continental Limited*	St. Annes	Lachine	12.9	11 1/2‡	67.3	Steam
Wabash	21, 24	*Bluebird*	Taylorville†	Litchfield†	32.5	29	67.2	Steam
Pennsylvania	23	*Manhattan Limited*	Bucyrus	Dunkirk	35.7	32	66.9	Steam
New York Central	43	*South Shore Express*	Erie	Conneaut	27.6	25	66.2	Steam
Alton	2	*Abraham Lincoln*	Springfield	Lincoln	28.7	26	66.2	Diesel
Chicago & Eastern Illinois	24	*Silent Knight*	Granite City	Livingston	28.5	26	65.8	Steam
Big Four	435	*Columbus-Cincinnati Spl.*	Wellington	Shelby	30.7	28	65.8	Steam
Baltimore & Ohio	6	*Capitol Limited*	Kingsbury	Lapaz	17.4	16	65.5	Diesel
Michigan Central	64	*Valley Express*	Battle Creek	Marshall	13.1	12	65.4	Steam
Baltimore & Ohio	26	*Columbian*	Wellsboro	Lapaz	23.9	22	65.3	Steam
Chicago & North Western	9	*Mail*	Denison	Missouri Valley	43.4	40	65.1	Steam
Pennsy.-Rdg. Seashore Lines	1070, 1073, 1077	*N. Y.-Atl. City Exp.*	Absecon†	Haddonfield†	45.3	42	64.7	Steam
Boston & Maine	265	*Streamliner*	North Berwick	Biddeford	21.5	20	64.5	Diesel
Peoria & Eastern	43	*Night Express*	Waynetown	Veedersburg	10.7	10	64.2	Steam
Missouri Pacific	25	*Texan*	Poplar Bluff	Corning	26.7	25	64.1	Steam
Burlington	48	*Blackhawk*	Alma	Winona Jct.	25.6	24	64.0	Steam
Great Northern	23	*Badger State Express*	Cedar (c)	Coon Creek Jct. (c)	11.6	11	63.3	Diesel
Atlantic Coast Line	91	*Champion* (WC)	Weldon	Rocky Mount	36.9	35	63.3	Diesel
Santa Fe	10	*Centennial State*	Lamar	Syracuse	48.4	46	63.2	Steam
Erie	16	*Midlander*	Marion	Galion	20.9	20	62.7	Steam
Santa Fe	128	*Local*	Granada (c)	Holly (c)	10.4	10	62.4	Gasel.
Southern Pacific	13	*Sunbeam*	College Station	Bremond	47.7	46	62.2	Steam
Nickel Plate	8	*Nickel Plate Limited*	South Gary	Knox	41.4	40	62.1	Steam
Illinois Central	1, 25, 29	*Creole; Fast Mail; Illini*	Arcola	Mattoon	14.5	14	62.1	Steam
Reading	607	*Crusader*	West Trenton	Jenkintown	21.7	21	62.0	Steam
Alton	19	*Ann Rutledge*	Bloomington	Lincoln	29.8	29	61.6	Steam
Lehigh Valley	4, 10	*N. Y. Exp., Black Diamond*	Caledonia	Rochester Jct.	13.4	13	61.4	Steam
Canadian Pacific	340	*Local*	Pasqua	Belle Plaine	10.2	10	61.2	Gasel.
Pere Marquette	3	*Detroit-Grand Rapids Exp.*	Howell (c)	Williamston (c)	19.2	19	60.6	Steam
New Haven	43	*Pershing Square§*	Saybrook	Madison	12.1	12	60.5	Steam
Rock Island	23	*Colorado Express*	Joliet	Ottawa	44.3	44	60.4	Steam
Union Pacific	6	*California Mail*	Columbus	Fremont	45.2	45	60.3	Steam
Atlantic Coast Line	75	*Havana Special*	Emporia	Weldon	20 0	20	60.0	Steam

Table of Aggregate Mileage

Figures in parentheses indicate the number of runs making up each item of aggregate mileage. Daily runs, as shown here, are those operated at least five times weekly the year around except as otherwise noted.

Railroad	Motive Power	75 mph and over	70 mph and over	65 mph and over	60 mph and over
Alton	Steam	.....	.....	.....	30 (1)
Alton	Diesel	.....	.....	29 (1)	572 (9)
Alton—Total		.....	.....	29 (1)	602 (10)
Atlantic Coast Line	Steam	.....	.....	.....	20 (1)
Atlantic Coast Line	Diesel	.....	.....	.....	551 (7)
Atlantic Coast Line—Total		.....	.....	.....	571 (8)
Baltimore & Ohio	Steam	.....	.....	24 (1)	332 (9)
Baltimore & Ohio	Diesel	.....	.....	17 (1)	645 (12)
Baltimore & Ohio—Total		.....	.....	41 (2)	977 (21)
Big Four	Steam	.....	.....	371 (6)	1036 (24)
Boston & Maine	Diesel	.....	.....	.....	121 (2)
Burlington	Steam	.....	.....	.....	160 (3)
Burlington	Diesel	405 (7)	1306 (20)	2306 (33)	4806 (67)
Burlington—Total		405 (7)	1306 (20)	2306 (33)	4966 (70)
Canadian National		.....	.....	.....	121 (2)
Canadian National	Steam	.....	.....	13 (1)	231 (8)
Canadian Pacific	Steam	.....	.....	.....	128 (2)
Canadian Pacific	Gas-el.	.....	.....	.....	10 (1)
Canadian Pacific—Total		.....	.....	13 (1)	138 (3)
Chesapeake & Ohio	Steam	.....	.....	.....	51 (1)
Chicago & Eastern Illinois	Steam	.....	.....	79 (2)	380 (9)
Chicago & Eastern Illinois	Steam (b)	.....	.....	.....	290 (3)
Chicago & Eastern Illinois—Total		.....	.....	79 (2)	670 (12)
Chicago & North Western	Steam	.....	.....	43 (1)	506 (8)
Chicago & North Western	Diesel	221 (4)	545 (11)	1614 (32)	3588 (82)
Chicago & North Western—Total		221 (4)	545 (11)	1657 (33)	4094 (90)
Chicago, N. Shore & Milwaukee	Electric	.....	15 (1)	81 (6)	1597 (112)
Chicago, S. Shore & South Bend	Electric	.....	14 (1)	93 (12)	457 (46)
Erie	Steam	.....	.....	.....	464 (9)
Florida East Coast	Diesel	.....	.....	80 (4)	356 (15)
Ft. W. & Denver C.; CRI&G	Diesel	.....	36 (1)	411 (5)	875 (12)
Great Northern	Diesel	.....	.....	.....	12 (1)
Illinois Central	Steam	.....	.....	.....	70 (4)
Illinois Central	Diesel	.....	.....	429 (8)	689 (14)
Illinois Central	Diesel (b)	.....	45 (1)	100 (2)	462 (10)
Illinois Central—Total		.....	45 (1)	529 (10)	1221 (28)
Illinois Terminal	Electric	.....	.....	10 (1)	34 (4)
Lehigh Valley	Steam	.....	.....	.....	120 (3)
Michigan Central	Steam	.....	.....	123 (2)	1839 (25)
Milwaukee	Steam	43 (1)	315 (6)	1032 (19)	2709 (53)
Milwaukee	Diesel	78 (1)	223 (4)	607 (10)	921 (17)
Milwaukee—Total		121 (2)	538 (10)	1639 (29)	3630 (70)
Missouri Pacific	Steam	.....	.....	.....	196 (9)
Missouri Pacific	Diesel	147 (2)	230 (5)	852 (20)	1543 (37)
Missouri Pacific—Total		147 (2)	230 (5)	852 (20)	1739 (46)
New Haven	Steam §	.....	.....	.....	12 (1)
New York Central	Steam	.....	.....	1081 (12)	10325 (115)
New York Central—System Total (f)		.....	.....	1575 (20)	13211 (165)
Nickel Plate	Steam	.....	.....	.....	137 (5)
Pennsylvania	Steam	123 (1)	492 (4)	1928 (21)	5282 (68)
Pennsylvania	Steam (b)	.....	.....	.....	192 (2)
Pennsylvania	Electric	.....	228 (3)	5865 (104)	16601 (370)
Pennsylvania—Total		123 (1)	720 (7)	7793 (125)	22075 (440)
Pennsy.-Rdg. Seashore Lines	Steam	.....	.....	.....	487 (15)
Peoria & Eastern	Steam				11 (1)

Pere Marquette	Steam	.....	.....	.....	19 (1)
Reading	Steam	.....	.....	.....	22 (1)
Rock Island	Steam	.....	.....	.....	132 (3)
Rock Island	Diesel	21 (1)	477 (10)	1265 (32)	3240 (81)
Rock Island—Total		21 (1)	477 (10)	1265 (32)	3372 (84)
Santa Fe	Steam	.....	.....	172 (2)	708 (9)
Santa Fe	Diesel	.....	128 (2)	607 (10)	2112 (31)
Santa Fe	Diesel (a)	.....	1102 (7)	1953 (15)	3428 (29)
Santa Fe	Gas-el.	.....	.....	.....	10 (1)
Santa Fe—Total		.....	1230 (9)	2732 (27)	6258 (70)
Seaboard Air Line	Diesel	.....	.....	101 (5)	1051 (21)
Southern Pacific	Steam	.....	.....	.....	467 (6)
Southern Pacific	Diesel (d)	.....	.....	288 (1)	571 (2)
Southern Pacific—Total		.....	.....	288 (1)	1038 (8)
Union Pacific	Steam	.....	.....	.....	221 (4)
Union Pacific	Diesel	94 (1)	528 (6)	1679 (19)	2065 (24)
Union Pacific	Diesel (d)	.....	.....	.....	380 (2)
Union Pacific—Total		94 (1)	528 (6)	1679 (19)	2666 (30)
Wabash	Steam	.....	.....	65 (2)	628 (15)

Recapitulation

Daily Runs

Steam	166 (2)	807 (10)	4931 (69)	26711 (412)
Electric	.....	243 (4)	6049 (123)	18689 (532)
Diesel	966 (16)	3473 (59)	9997 (180)	23147 (432)
Gas-el.	.....	.....	.....	20 (2)
Total	1132 (18)	4523 (73)	20977 (372)	68567 (1378)

Runs Other Than Daily

Steam	.....	.....	.....	482 (5)
Diesel	.....	1147 (8)	2341 (18)	4841 (43)
Total	.....	1147 (8)	2341 (18)	5323 (48)
GRAND TOTAL	1132 (18)	5670 (81)	23318 (390)	73890 (1426)

† Runs listed in both directions
‡ Half-minute more than timetable shows
(a) Operated twice weekly
(b) Operated every third day
(c) Including intermediate conditional stop or stops
(d) Operated ten times monthly
(e) Operated five times monthly
(f) Including Big Four, Mich. Cent. and P&E
§ Sundays only. Shown merely for information not included in totals
(EC) East Coast section
(WC) West Coast section
(VS) Virginia section
(WS) Washington section
Dixie Flagler, City of Miami and *South Wind* operated on successive days on same schedule

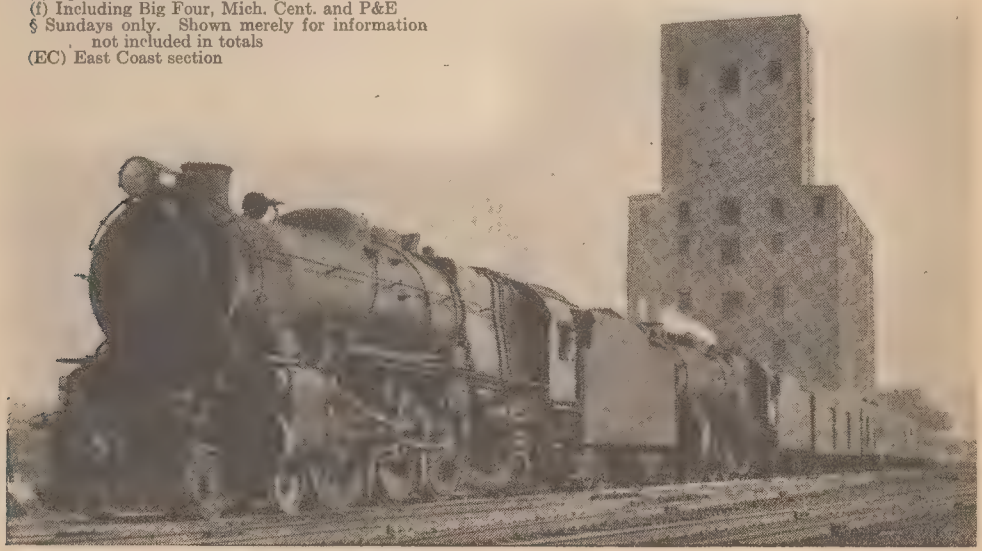
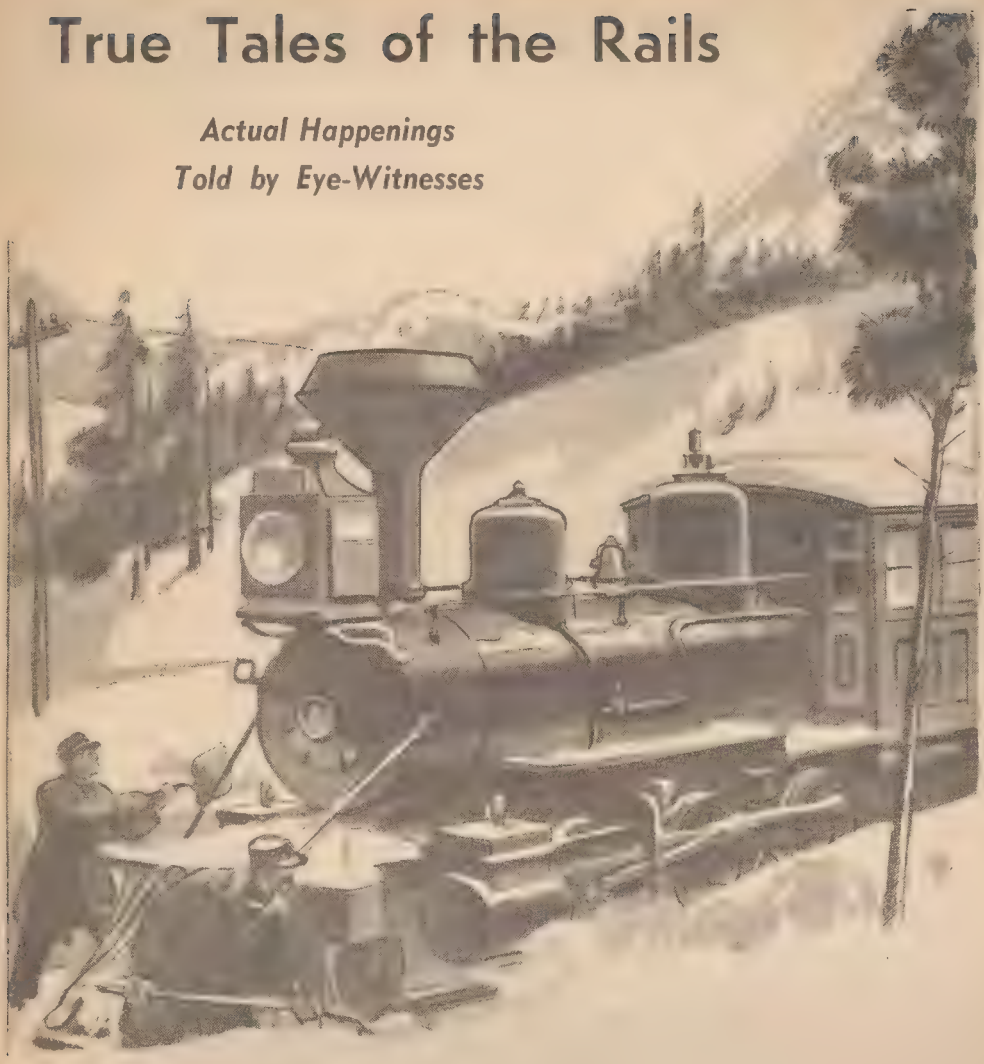


Photo by Pvt. Frank Smarz, 5th Tng. Btry., Coast Art. School Det., Fort Monroe, Va.

A FAST-STEPPER, the ***Trail Blazer***, doubleheaded by Nos. 3800 and 3876

True Tales of the Rails

Actual Happenings
Told by Eye-Witnesses



Two Months Overdue

TWO MONTHS to complete a regular run! It sounds incredible, and yet that is the literal truth of the matter. I was braking on the Old South Park at the time, on trains running over the "high line" between Denver and Leadville, around the turn of the century.

Colorado winters are tough on railroading now, but in the nineties, with the kind of equipment we had then, snow and cold could turn a run into something like a polar expedition. I'll never forget a trip on Number 81, which began out of Denver on the night of January 26th, 1899.

We were called to leave at 6:30, and there were about six inches of snow on the ground then. As we double-headed up through Platte Canyon, about twenty miles west, the stuff was getting deeper, and by the time we reached Pine Grove, we were pushing through a foot of snow.

We bucked our way up the line through Estabrook Canyon, making pretty fair time, when one of our engines was de-

By
AN OLD-TIMER

railed about two miles this side of Kenosha Pass. This delayed us about three hours, for getting the old mill back on the track again was no cinch, but we finally made Como about 7 a.m. the next day.

The old girl needed a few repairs, so that gave us a chance to get a hot breakfast at the railroad hotel before starting the climb up crooked old Boreas Pass. The snow had reached a depth of about two feet by then, and even with two good engines, we had a tough time blasting our way around those twenty-four-degree curves and up along the narrow ledges to the Boreas station, which is at an elevation of something over eleven thousand feet.

We started down the west side, a four percent grade most of the way, through Breckenridge where we met passenger train Number 72, and on to Dickey. At this point we coaled up and started through Ten-Mile Canyon, with the snow piled a good three feet on the track.

By the time we left Wheeler, conditions were getting really bad, and we were only about a mile west when we had to give up. The rotary plow would be coming through soon, we figured, so we backed up to the siding at Wheeler to wait for it. During the night, the section men from Kokomo, six miles west, stumbled up to our train. We had been reported lost, and they had made their way through six miles of heavy snow to see if they could locate us. When they found that we were okay, they headed back to

Kokomo; I never could see how they made the trip again that night, but they did.

The next morning, the twenty-eighth, we were faced with the problem of getting water to keep the fires going. We debated whether to shovel our way out of the siding to the tank or to use snow as a substitute. Digging our way out seemed the better idea, and we put in a good day's work at the job. We got water enough for two days, but when that was gone, we were back again to the plan of heaving snow into the engine tanks. It was then that I discovered it takes a big scoop of snow to make even a teacup of water.

C. C. SQUIRES, who helped the Old-Timer write his story

By this time we were running short of grub—our supply in the coach was almost gone—so we had to break into the reefer. A barrel of dressed poultry seemed likely to furnish us with a good supply, and that day we took out enough for a big meal. The head brakeman said he was a fair caboose cook, and he turned out a stew of chicken and dumplings which tasted fine. There was enough left for the next day, but instead of putting it outside overnight, he left it on the back of the stove. Our next meal began and ended with one mouthful for each of us; I know I couldn't eat stewed chicken for several years afterward, and I don't believe any of the other men could either.

WE FOUND a quarter of beef in the reefer after that, and for the next twelve days while we were stalled on that siding at Wheeler, the beef provided us with plenty to eat.

No plows got up through Ten-Mile Canyon, and we waited there, shoveling snow into the tanks for water and eating beef stew, for two whole weeks. Finally we decided that we had to strike out for the nearest open station before another blizzard closed us in the canyon completely. We got over to a sawmill near the right-of-way and took enough material to make skis for each of us. I was doubtful about how useful this would be, since I was a greenhorn at such a method of travel, but it was skis or nothing, and I had to learn how to manage them.

Leadville was twenty-five miles away, up over Fremont Pass, but I decided to head for it. After two days of exhausting labor through the snow, I stumbled into the depot. I needed a couple of days' rest before starting the trip via rail back to Denver. I went as far as Colorado Springs on the Midland, and there I got a telegraph pass on to the city via the old Union Pacific, Denver & Gulf.

When I finally got back, one day around the middle of February, I was met at the depot by S. L. Raney, who was chief clerk to General Superintendent T. F. Dunaway of the C&S. Mr. Raney had been division superintendent up at Como at one time, and he was much interested in hearing about conditions on the high line.

The rest of crew had chosen to go east from Wheeler, and I was relieved to find out that they had reached Denver after skiing over both Boreas and Kenosha passes to Grant, a distance of sixty miles. The road was open there, and they had easily gotten back to the terminal.

My next runs with the Old South Park were made on the rotary plow, and for two months we were busy keeping the road open. On one trip in March, we had eight engines behind the plow and they could not hold her up against the snow on that steep grade near Boreas. We measured the snow pile in front of us—it was nineteen feet high from the roadbed.

It was on the twenty-ninth of May that I was called to leave Denver again on Number 81 and this trip we picked up our train that had left the city on January twenty-sixth. The rotary crew had moved the cars up from the siding at Wheeler to Kokomo. We took the string on to Leadville, and that was the end of a two-months' "record run."

All photos courtesy of Northern Pacific Ry.

BIG ROTARY plow on the plains of North Dakota in the 1890's

Half a Century Ago

By TOM H. BRADFORD

As told to LeRoy Palmer, Union Pacific agent-operator

I STARTED firing on the Northern Pacific in 1891. At that time most of the runners were middle-aged—for a reason that seems incredible today. The Brotherhood of Locomotive Engineers had an agreement with the company not to promote firemen *except at the rate of one promotion for every nine new hoggers hired.* That is to say, if you were number ten on a list of tallowpots in line for moving over to the right-hand side, you'd have to wait until *ninety* additional B. of L. E. members were put to work.

As a result of this deal, many boomers were wheeling freight and passenger for the NP, including several men from the Burlington who had lost out in the strike of 1888. Among the latter was Bill Chambers, a big Irishman. This old fellow and I had one trip together with an experience that I think has never been duplicated.

Bill was bluff and good-natured. You could recognize him a block away by the flowing red mustache. It reminded me of pictures I had seen of Norse pirates. His one bad habit was chewing Star plug and spitting a stream of tobacco juice in various directions. Sometimes he'd hit the hot boiler; and when he did, especially in winter, with all the windows closed, the air inside that cab was none too fragrant. But Bill Chambers was a great guy, always willing to help a student. I enjoyed firing for him.

The trip I referred to began when Bill and I deadheaded from Staples, Minn., to Duluth, on train 279, to bring back a light engine. It was a bitterly cold, gray, December morning in 1891. After reaching Duluth we had an early breakfast and

RAILS ON ICE: NP train on track laid across the frozen Missouri River between Bismarck and Mandan, N. D., in 1882, before bridge was built

ambled over to the roundhouse to get the engine ready.

She was number 63, a little Hinkley job, with cylinders 15 by 22 inches. I guess she weighed about thirty tons. She'd been used between Duluth and West Superior, making a round trip every hour. Having a pilot on the rear of her cab, she ran one way backing up. At each terminal they'd just run her around the train. Her tank was housed in to keep out wind and storm. Each side of the housing had a trap-door. These were opened to admit coal or for the fireman's use in getting in or out when he took water. We decided the 63 was quite a curiosity.

Only the right main rod was in working order, all other rods having been taken down. Thus we had only one engine and one set of driving wheels. To start a locomotive in this condition you have to get her on the quarter stroke at the driving-wheel side. If she stops on center, you need a pinch bar to set her rolling again. Maybe you couldn't do that with the giant power of today; but remember, brother, we're talking about the 1880s. A man could do some fancy juggling with a kettle like the 63. But Bill didn't like her looks.

"This is one hell of an engine to send out on the main line," he complained to the roundhouse foreman. The latter smirked.

"There she is, Chambers! Take her or leave her."

Bill had no choice but to take her. My duties were to see that she had proper signals, a headlight filled with oil, a tankful of water, a sandbox loaded with sand, a supply of lubricating oil, and all necessary tools. These chores I performed, and then we backed up to the Lake Street station for running orders.

About seven a. m. we started west. I have said that Bill was large; when he sat in a cab he really occupied it, if you get what I mean. Especially a tiny cab like 63's. But we got under way all right, slipping and sliding on snowy rails. The line from South Superior to Carlton is mostly up-grade. We used up all our sand in climbing the long hill.

Among other things our engine did *not* have was a driver-brake—even that had been taken off! There was only a hand-brake on the tank; but that was no brake at all, for its staff, running down through the deck of the tank, soon froze solid and became utterly useless. In spite of difficulties, though, we chugged along pretty well. Bill figured on making Atkin station for Number 280, an eastbound passenger train. Then we hit some more snow and the old girl slipped so badly that Bill headed into a little spur before we reached Atkin.

The spur was down-grade, but snow had drifted heavily over the rails, so we got stopped all right. However, we came to a stop on center at our good side. After 280 had gone by I lined up the switch, shoveled snow from the rails and we let her drop down on the quarter. Bill gave her the gun. She just stood still, spun around and stopped on center again! For about two hours we tried to get out of that spur. At length the engineer called me up to the cab in disgust and shouted:

"To hell with her! We'll stay here till someone comes along and pulls us out."

With that he settled back comfortably

on the seat cushion and reached for his plug of Star. Now, it happened that a sled road ran down beside the track, and as we were sitting there a man came by with a load of logs drawn by two yoke of oxen. Bill eyed him speculatively.

"I wonder if that fellow could give us a lift. Go ask him, Tom!"

"Four oxen's a lot of power," I said, heading over to the lumberman to explain our plight.

The man listened patiently and agreed to help. So we hooked the oxen onto the rear drawbar of our tank. Then the stranger cracked his whip, while Bill yanked on the throttle. The result was rather startling. Driving wheels began to spin. This racket frightened the oxen so much that they tore into the yoke like a charge of dynamite, and we sailed out of the rut in a hurry. That was fine, but the animals didn't stop there; they kept on running.

Bill tipped her over in head motion. Wheels spun around and the oxen ran all the faster.

FIRST rotary snow plow on the Northern Pacific, in the winter of 1888. The author made his first trips behind the dangerous, old-style wedge plow

"Open one of the trap doors on the tank housing," he yelled to me, "and see if you can't pull the pin on those gol-darned steers!"

Well, I did that. We came to a halt and managed to get started in the other direction. As we looked back we saw the oxen round a curve, still going strong. Our switch ahead was lined for the main. The lumberman was waiting for us there, and was he mad! He wanted to punch me on the nose, but Bill talked him out of it, gave him a dollar, and the fellow went away grumbling.

"I've run an engine for twenty-five years," exploded Bill, "but that's the first time oxen ever got pulled me out of a tight place!"

Eventually we got back to Staples. We'd been on duty twenty-four hours, Bill had run out of Star, and I was a tired and sleepy student fireman.

SHORTLY after this I learned about snowplows. My call was for nine a. m. to fire engine 120 for Tom Carmody, running a wedge plow. We had to clear out cuts on the Wadena branch, which had been tied up two days by a blizzard. Tom was a short, stocky Irishman of about fifty-five. He, too, had been a Burlington striker. What he said to me that

THE *PACIFIC EXPRESS* winds through the woods over the rails of the Spokane, Portland & Seattle, near Multnomah Falls, Ore.

morning is something I will never forget.

"Son, I don't like these snowplow trips."

I asked him why.

"Too much like suicide."

I didn't know quite what he meant.

"You've not been firing long, have you?"

"About two months, Mr. Carmody."

"Ever been on a wedge-plow trip?"

I said I never had, but I thought it would be fun to buck snow, with two locomotives to help us out.

"If we're lucky enough to get back from this trip alive," Tom declared solemnly, "you may change your mind."

TOM H. BRADFORD, as he looked in 1938, on his last run

As it happened, I sure did. But that's going ahead of my story. The lead engine which was selected for our trip had two sets of drivers and a double truck to carry the massive plow. Before we could attach the latter we had to take off the pilot and bolt the snow-fighting equipment onto the pilot beam. There were two sturdy braces to take part of the shock; these extended from our smokebox to the heel of the plow.

Built of thick steel plate and as wide as track ties, the plow sloped back at a 45-degree angle toward the smokebox. Its plowshare was shaped like a V, pointing forward so as to throw snow away on each side of the track. The plow stood as high as the headlight cage, which at that time sat atop the smokebox just ahead of the stack.

Under the plow were two heavy steel shoes, clearing the rails only about two inches when running and not in heavy snow.

When you hit a drift, the pressure on the plow would crowd the engine-truck springs down, causing the shoes to hit the rail and take the shock. One objection to this was that the steel shoes would shove torpedoes off the rails instead of exploding them, which made it tough for a flagman. It was quite a problem.

The ashpan was always taken off a snowplow engine for several reasons: the fireman would not have to crawl under to hoe out the pan, the fire got a better draft, and when you were in heavy snow the pan banked up snow and hindered free movement of the engine. Helper engines assigned to this service had their pilots removed, as a pilot would bunch up a lot of snow when we were backing up. Once we'd have to back up several times to make a run for a bad drift to get through it—that is, if we stayed on the rails.

The locomotive tank was covered with a tarpaulin, extending from the rear of the cab to the rear of the tank and supported by a ridge pole. In addition, there were substantial heavy side curtains for the gangway; these were tied down after the engine crew got in the cab, ready to go.

This December morning we stood on the outgoing track—our two helpers and some flatcars upon which sprawled a gang of section men who'd shovel us out if we got stuck. The yard goat coupled on our caboose. We tried the air-brake, connected the bell-cord from the crummy to the gong on the rear helper engine, backed out on the main and stopped at the dispatcher's office.

The crews were mostly Irishmen. Mike Durkin handled the first helper engine, 715, a Baldwin Mogul, with Grant Kingsley firing, while Martin Degman and Fireman Jim Furlong made up the crew

of the second, 535, also a Mogul. Our conductor was Jim King, short, fat and jolly. I don't remember the brakemen's names.

While we waited for orders, A. J. Sovering, the Assistant Superintendent, a huge man with a bulldog expression, came by and spoke to Tom Carmody. Sovering had been a hoghead himself before his promotion. He asked, in a tone that was not funny, if Tom had all his family affairs arranged. I realize now that he half meant it. I began to think there was some danger connected with snowplows after all.

The sky was clear, the mercury hovered at forty below, and a stiff gale whipped across the endless blanket of white. Water would turn to ice in no time. Knowing this, the carmen threw a lot of water on the plow blade. This froze hard as soon as it hit, giving the plowshare a glassy surface to which snow could not cling.

Starting signals were like this: the plowman whistles off; the second engine follows suit, and when the conductor answers from the caboose, the third man whistles off, and away you go. In that manner we got rolling. Right from the start, much of our running would be blind, so the dispatcher gave us full right-of-way. We were not even to be held responsible for running a red order board. What little view the engineer had was obscured most of the time by a cloud of flying snow. The front cab windows were boarded up tight. We couldn't see out, except through the side windows. Other trains had to look out for us—that was understood.

As I mentioned before, the steel shoes under the plow would shove torpedoes off the track. When snow was deep and with almost no view ahead, it was next to impossible to flag a wedge-plow in action. Almost the only way to stop one of them was by heaving a lantern or a rock through a side window—a dangerous procedure which might cost an engineman's life.

There have been cases of another train in the path of a snowplow, and it was just too bad. I recall one such incident at Winnipeg Junction. A branch-line hogger ventured out on the main stem for a tank of water, although he knew a plow was about due. He became stuck in the snow and ice; couldn't start again. His brakeman, hearing the plow, rushed back to flag, but was unable to get a signal to the plow-man and frantically threw his lantern at a cab window, shattering it. Flying glass put out one of the engineer's eyes. The branch-line runner lost his job for having been out on the main in the way of a snowplow.

GETTING back to my story: We pulled out of Staples, heading toward Wadena, eighteen miles west. When Tom blasted off, he noticed his whistle had a peculiar tone and said to me:

"That's a hell of a poor whistle."

The run to Wadena was just another winter morning ride. It was a crisp, sparkling day. My spirits were high. Snow which had drifted across the rails flew before us in a great cloud. The sun shone brightly, making the snow glisten like diamonds.

All went smooth until we arrived at Wadena. There we learned the first bad news: our whistle was gone. Tom was in a stew over this, especially because ours was the lead engine and the instrument had been a much-needed means of communication. We tried to use the whistle off the second locomotive, but it wouldn't fit. At length we decided ruefully to go on without a whistle and rely on our air to stop, if necessary. But your air is not much good when all your brake-shoes are full of snow and ice.

The branch ran 141 miles to Milnor, N. D. The first fifty miles, to Fergus Falls, was timbered and brush country and had few high drifts. But from Fergus Falls on, it was open, rolling plains with numerous cuts. It was there we expected trouble. Sure enough, when we stopped at the Fergus Falls office, the branch roadmaster, Mr. Hogg, told us that six miles west—just across the Red River

bridge—we would hit heavy drifts. He said Frenchman's Cut was filled with about twelve feet of hard snow and sand, and he didn't know whether we could get through or not.

"Hit 'er hard!" he advised, "she's one tough spot!"

The track from Fergus Falls to the cut was as crooked as a switchman's lodge pin. Our engine swayed from side to side, and before we got halfway there I just about quit trying to hit the fire-door with a scoop of coal. I was nervous. Tom shut off the throttle. I think he, too, was a bit scared. The two helpers behind couldn't see what we were going through and were lacing it to their engines. When we crossed the big bridge over the Red River we knew we were not far from the cut. I managed to get in a good fire and braced myself for the shock.

When we hit the first huge mound of snow it didn't seem so bad. I thought we were going to make it. The drift slowed us down. We could hear the two helpers drop down their reverse levers and give them the gun. About that time our old mill began to rock and roll. We knew then we were off the iron. Tom, forgetting he'd lost his whistle, grabbed the cord to signal the other engines, but, of course, no sound came forth. We were now jumping like a jackrabbit and I had a hard time to hang onto the cab braces.

Tom slammed on the air. However, the engineers behind evidently figured we were hitting a drift and went after it all the harder. Then Tom unlatched the Johnson bar and tried to throw her in back motion; but the notches on the quadrant were full of snow and the dog would not hold, so the reverse lever just slashed fruitlessly from front to back as the wheels turned over. The last impression I had before passing out was Tom's voice yelling that the Johnson bar had broken his leg.

Then as our engine tipped over I was thrown with one shoulder against the water-glass, smashing the darned thing—we had no water-glass guards at that time. Then I lost consciousness, and did not know what was happening until I felt someone step on me. That brought me back to life. The cab was so full of steam from the water-glass that the rescuers were just about blinded by it. Our engine was lying partly on her left side, in a cloud of vapor, with the tank crosswise behind us.

When the tank jack-knifed, it threw the head helper locomotive truck off the rails. That was the first inkling Engineer Mike Durkin had that anything was wrong. After our rescuers had shut off our water-glass cocks, they pulled out Tom Carmody, who also had fainted, and carried him back to the caboose. I was still feeling shaky but otherwise unhurt, except for a few bruises. It was easy to see what had occurred: our engine climbed the hard drift instead of going under it.

Conductor King then had the rear helper cut off. We took that and backed up to Fergus Falls, with the caboose, to get medical attention and call the wrecker. Tom went to the hospital for several weeks. When he came out, somewhat weak but undaunted, he grinned at me and asked:

"Well, kid, what do you think of snow-bucking now?"

"It sure is hell," I said, and meant it. There was no longer any doubt in my mind as to why the old hogger hadn't fancied a wedge-plow trip.

ONE COLD DAY in December, 1892, I was called for 8:50 a. m. to go west on a delayed passenger special. A blizzard had tied up the Wadena branch for three days, and drifts were still piled high. The morning was bright and sunny, but the mercury had sunk sharply to forty-five below. We were given a main-line passenger engine, Number 412, with a "butterfly" plow. I overheard the chief dispatcher, Charlie McMillen, tell my engineer that 412 was heavy power to run on the branch and he'd better handle her with kid gloves.

The hoghead was Harry Otis, an extra man. Harry was tall and slim and a bundle of nerves. He had such annoying

FLEET of wood-burners arrive at NP outpost, Missoula, Mont., in 1883.

mannerisms as biting at his sandy mustache and pulling out the throttle and then easing it shut again for no reason at all.

The train consisted of one baggage car, one mail car, two day coaches and a sleeper. Our conductor was "Dad" Hepburn, an elderly home guard with gray hair and mustache and a decided limp from some old injury. As the old-timer gave the orders, I heard him ask Harry if he knew the branch line. The engineer replied, with cocky assurance, that he had been over it before and guessed he could find his way again. We took a tank full of water and got going.

Our engine tank had the customary tarpaulin, and the gangway curtains were tied down to keep out the snow. We had pretty good going for a while. What drifts we hit after getting on the branch were thrown lightly aside by our plow and we were making a good run. After Henning, a station eighteen miles from Wadena, we came upon a mile of straight track, then a sharp reverse curve to the left. At the point of the first curve was a small sand dune.

The dune was on a down-grade. As Harry was running along about forty miles an hour, I began to get worried. I knew that at this pace he would hit the curve hard. So I stepped over to the right-hand side and told him there was a bad reverse curve ahead and that engineers usually slowed up when rounding it. The advice fell on deaf ears. Harry said it looked to him like a big snowdrift; he wasn't going to get stuck and, besides, he knew his own business.

I thought: *All right, you fool; but there are other people on this train besides yourself!*

Before I had a chance to say anything more, we struck the first left-hand curve and Harry was thrown through the side window. I banged against the Johnson bar. Hanging desperately to the side panel, Harry managed to climb back through the window. Then he got hold

Note engine sheds built in semicircle, like modern roundhouse

of the brake valve and gave her the "big hole," just as we hit the right-hand curve. I felt the wheels buck.

The drivers jumped the rails; but the engine trucks stayed on, and that alone saved us from turning over. The driving wheels tore up the track. This, of course, derailed the train, which left the grade and lay on its side about fifty feet from the rails in four feet of snow. After we had jumped along some three hundred feet, the engine stopped, right side up.

Both Harry and I were too badly frightened to say much. All the engineer did was chew on his mustache. As my side window was frosted over and frozen tight, I couldn't look out there. Harry's window was gone, where he had plunged through it. He looked out and wailed:

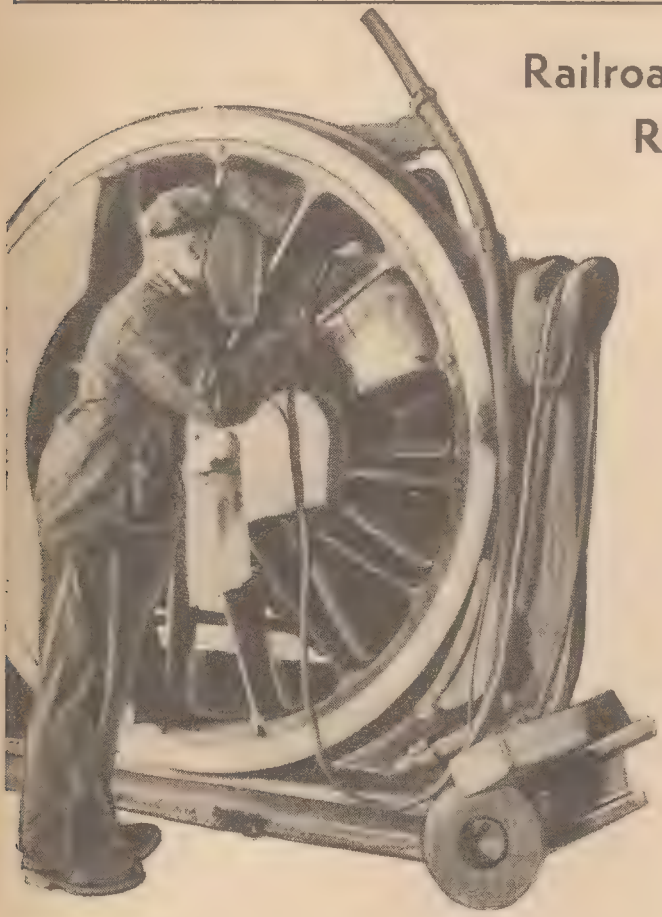
"I can't see any train."

The reason for his not seeing it was that the train lay on our left side in the ditch. I cut a hole in the tarpaulin and got out. There lay the train alongside the track, with passengers trying to get out through the windows. As all the cars were heated by stoves, the train took fire immediately. With the help of farmers who came to the scene, we put out the fire by shoveling snow on it, and the people clear of the wreck. One company car repair man, deadheading, was killed. Several passengers were injured, while poor old Dad Hepburn was cracked up so badly that he could never work again. Dad had been just about due for a pension anyhow.

All this mess was caused by a bonehead engineer who thought he knew it all and the fireman nothing. Other runners on the Northern Pacific took a similar attitude more than fifty years ago, at the time I was firing. The incident taught me a lesson. It taught me not to ignore a word of advice from a fireman, when later I was on the right-hand side.

Light of the Lantern

Railroading's Handiest Repair Tool



MENDING bends on superheater units, fixing flue beads to the back sheet, patching weak spots in reciprocating engine parts subject to continuous wear and tear—these are only a few of the jobs now done quickly and efficiently by the arc-welding process. Work that once took days can be completed in a few hours with the most useful repair tool in the shop.

From crude beginnings, modern arc-welding equipment has developed into highly practical, single-operator units, like the one shown at the left

A WIDE GRIN brightened the tear-stained countenance of Charley Dilling as he looked at Mike Mohan. "You've sure got a tough looking pair of optics, Mike", he said.

"You should talk!" Mike shrugged. "I guess dark glasses aren't just the right thing for the arc-welding business."

This conversation took place some thirty years ago at a terminal enginehouse on the Boston & Maine. Charley Dilling and Mike Mohan had read something about electric welding and the equipment needed. Being ingenious young mechanics they had set out to build an arc-welder and so far they had done all right. Their source of power was a steam exciter in the generating plant. Lacking suitable grids or reactors the boys had fashioned a crude resistance arrangement. This consisted of a barrel of salt water, in which were immersed two copper plates. By separating or bringing them closer together, the amperage was changed to some degree. How much is still a mystery.

That first day of experimenting had taught both of the boys a lesson that was to stick by them through the years. They had learned the all-important need for giving eyesight maximum protection.

Step two was to rig up a hand shield. Theirs was a clumsy affair, compared with those of light-weight fibre used today. Their

eye and face protector was a rectangular box-shaped arrangement made from half-inch wood, with a short piece of broomstick for a handle. Ignorant of the proper lens to use, they searched the stores department for colored glass and finally decided upon two blue and one red marker rondel. This same combination was employed with questionable success for many years.

After Mike and Charley became somewhat proficient with their arc-welding, they found a dozen jobs or more which they could do successfully. One of these was repairing superheater units. They seemed to get along pretty well building up the return bends.

The boiler foreman soon realized the possibilities of arc-welding and introduced the boys to a set of flue beads, asking them if they could weld them to the back flue sheet. Probably this was the toughest assignment they ever undertook. After several hours of heart-breaking effort they crawled out of the firebox and surveyed the result of their labors. It was terrific. You could throw your hat at the sheet and it would catch and hang on the welding wherever it landed. But they didn't give up. Neither did their contemporaries in the field. Today welding flue beads to the back sheet is standard practice on almost every railroad in the country.

THE FIRE BOX of a locomotive lends itself readily to welded repairs and before the man in the street had even heard of arc-welding, it was common procedure to apply side sheet and corner patches in this manner. Some roads even went so far as to weld in entire half side-sheets.

Still the new repair aid was no cure-all. The quality of metal applied in those early days of arc-welding was a scandal. Almost anything of the correct size was used for electrodes, with no thought given to its machineability or strength.

The many cast steel cross-ties, frame braces and brake-hangar brackets on an engine bed are forever cracking and breaking, and attempts were naturally made to arc-weld such units. But due to lack of elasticity in the deposited metal, inability to secure proper expansion, and the low strength value of the bare rod arc-weld (usually under 48,000 pounds per square inch) the majority of these repairs failed. The one redeeming feature was that a casting might be kept running until a new one was purchased or the engine went to the shops for a general overhaul.

In due course, however, the large wire manufacturing companies began to experiment, and to put on the market welding wire created expressly for the arc-welding process alone. The larger electrical companies,

WELDER locks a "dam" to a driving box, preparatory to building up a new bronze hub surface

Welding photos by Arthur Havens, Rutland, Vermont

ALL-WELDED pilot, made from second-hand angle iron, is both good-looking and economical

WELDING flue beads to the back flue sheet was one of the first jobs for the arc method

too, began to take note of possibilities of arc-welding and started building portable arc welding machines as well as ponderous multiple-operator constant-potential type motor generators varying in capacity from three hundred to many thousand amperes. Down through the years the former, single operator type of welding machine has proven the most economical and popular, especially with the railroad welder.

Anyone who knows his way around the backshop can tell you what a tremendous amount of wear occurs on all engine reciprocating parts, and between the frame castings and the frame itself, when such units become loose and start to chafe. Driving wheel hubs are no exception and new wearing plates must be applied frequently—that is, on the older power. It was once customary to apply these hub plates with countersunk head bolts. But with the innovation of arc-welding the hub liners could be held snugly in place with pipe jacks in the driving-wheel recess and the periphery welded with several beads of arc-weld bare rod.

How odd it seems, now, to recall welding hub bearing plates with several beads of 1/8 or 5/32-inch bare rod, when the same job is done today with one pass of 1/4 or 5/16-inch heavy coated electrodes.

Locomotive guide bars are another engine part that receive a great amount of wear, and arc welding was soon accepted as a means of restoring these heavy parts to their original size. Rebuilding the four guide bars to size for machining once took days to complete. Now, however, 3/8-inch lateral wear can be replaced with coated rod in less than an hour per guide.

Not so successful has been the practice of welding small plates into the worn spots in locomotive frames caused by chafing spring hangars. Invariably, after this was done, the frame would fracture just under the bead of weld metal; reason enough for most railroads to discontinue the practice.

Some mechanical departments, too, are prejudiced against arc-welding fractured frames, feeling that to secure one hundred percent success, the oxy-acetylene process is necessary. However there seems to be little justification for such a stand. Even in the era of the bare rod, repairs of this type were successful and today are as routine as welding a grease bushing on a side-rod.

SOME YEARS AGO, our old friend Charlie Dilling was working at his bench, his thoughts, like those of most welders when busy, drifting dreamily ahead to the days when he could dunk a grey hackle in his favorite trout stream. Suddenly the booming voice of the shop foreman jarred him.

"Look", said the foreman, entering the booth, "can you weld a badly broken valve spool? We've got to get the 3627 out tonight and there isn't a new one on hand."

Years of welding experience had taught Charlie that welding a cast-iron unit of this type was a stop gap at best. Sooner or later it would have to be replaced.

"Why don't you let me make you a new one out of steel plate?" he asked. "It won't take long and you'll have a permanent job."

A short piece of superheater flue served as the center section. The cones were rolled out of ¼-inch plate and the ends were made from ¾-inch tank steel, to allow for errors in the length and design. The assembly was quickly welded together with heavy coated rods and after a short machine job the fabricated spool was ready for service.

Since that time no cast iron valve spools have been purchased by Charlie's employer and there are dozens of welded ones giving satisfactory service.

This is but one instance of the welding economies evolved and put into practice not only during lean years when every railroad was searching for ways to save money but today as well, when the shortage of material is the compelling factor. One of the first big money savers was the all-welded pilot. Made principally from second hand angle iron and scrap flues, it has worked out so well that it is the accepted standard on many roads.

Such members were soon followed by the fabricated front end, including smokestack, smokestack extension, welded back-plates and an all-welded ring blower. Steel plate which was headed to the scrap box served for these engine parts.

The welded steel petticoat pipe or smokestack extension, too, is a boon to the roundhouse boilermaker who must remove it at frequent intervals. The cast iron type was heavy and awkward, whereas the steel unit can be handled without a chain falls or a crane. Another feature of the latter is the ease with which it can be repaired.

THE FOREGOING are only a few of the parts now regularly fabricated. Troublesome frame castings are replaced with weldments that really do their job without sign of fracture or failure. Cast-iron grease collars are replaced with steel ones, along with the heavy trailer oil cellars. All-welded ash pans are much neater looking and longer-wearing than the riveted type. Main steam cylinders are fabricated from flame-cut steel pieces arc-welded together. And the all-welded driving wheel center is a business-like engine part.

In fact, we could start at the front coupler of a locomotive and, working back toward the tender, find that nearly every part was either replaceable, or suitable for reconditioning, with the aid of the hissing electrons. Railroads which once ordered rods by the hundred pounds now buy in dozens of tons. It is safe to say that arc-welding is the greatest repair tool of all time.

The Information Booth

EACH month the Lantern Department includes, in addition to a technical article on some ramification of railroading, answers rail questions of general interest, submitted by our readers. We do not send replies by mail.

1

WHAT is an injector and where is it located in the engine cab?

The simplest kind of steam engine requires a boiler feeder—a means of forcing a constant supply of water into the boiler against the operating pressure from within. Various types of pump performed this job on early steam locomotives, until a device called an injector was developed by English manufacturers around the middle of the last century. In this mechanism, a jet of live steam from the boiler is forced through a combining tube, where it creates a partial vacuum. Water carried in pipes from the tender tank rushes to fill this space. It mixes with the steam, and the velocity of the latter plus the

weight of the water overcome the pressure within the boiler itself. As a result of its design, the injector serves also as a feedwater heater, since the steam condenses and heats the cold water entering the combining tube.

Although present-day engines are still equipped with injectors of either the lifting or non-lifting type, their functions have been largely taken over by the development of the modern feedwater heater (see Lantern Dep't. article, December, 1941). There is an injector operating lever on either side of the cab, the second being for emergency use.

The first injector to be used in America was built into a locomotive supplied by Matthias Baldwin to the Clarksville & Louisville Railroad in 1860. PRR and the Reading were among the first to adopt the injector as standard equipment.

2

DESCRIBE the route of the Lehigh & New England.

The main line of this freight carrier extends from Nesquehoning, in Carbon County, Pa., to Campbell Hall, N. Y., a distance of 130.6 miles, crossing the Delaware River at Portland, Pa.

3

WHAT is the capacity of the new 4-6-0 tender type being applied to J-3a Class Hudsons on the New York Central?

Forty-three tons of coal and 17,500 gallons of water.

4

CANADIAN PACIFIC'S line across Maine is referred to in E. Stanley Johnson's article, Single Track (February '44), as one of two stretches of track operated under the CPR banner within the United States; where is the other one?

On its Montreal-to-Boston route, CPR lines enter the United States just beyond Sutton, Que. Winding through northern Vermont, the road heads south at Newport to Wells River, and Woodsville, N. H., making connections with the B&M.

Both of the big Canadian systems control companies operating in the States: the CNR with the Central Vermont and Grand Trunk, while the Soo Line is a CPR subsidiary. In addition, both com-

RIO GRANDE 3613 is pulling wartime freight again after a thorough overhauling at the road's Burnham, Colo., shops

Photo from F. J. McAlees, 38 William St., St. Thomas, Ont., Canada

TEN-WHEELER No. 7 of the South Georgia Railway, at Quitman, Ga. Tender was equipped with wood-rack; the road still uses yellow pine for fuel (see Item 9)

panies possess trackage rights on various U.S. roads. The remainder of Mr. Johnson's single track line, from Mattawamkeag to Vanceboro, on the Maine-New Brunswick border, is Maine Central track.

5

WHAT determines the factor of adhesion? This ratio is different on some European locomotives; explain why.

Most American-built locomotives have a factor, or ratio, of adhesion of approximately 4 to 1. That is, the weight of the engine on drivers is about four times the pressure exerted on the wheels from the piston action. If too great a weight is placed on the driving wheels, the amount of adhesion is increased, causing unnecessary wear and tear on the rails. If the weight on drivers is inadequate, the wheels slip. External conditions that affect adhesion are the surfaces of the rails and tires; hence the early development of sanding devices to overcome faulty adhesion caused by wet or slippery rails.

This ratio best suits American locomotives, which in general are built for versatility of service. It is true that electric locomotives used on Swiss railways have a factor of adhesion of 35 and 37 percent. However, these engines are used on heavier rails (in proportion to locomotive weight), and in mountainous country.

R. W. Madison, 2418 Bristol St., Omaha, Neb.

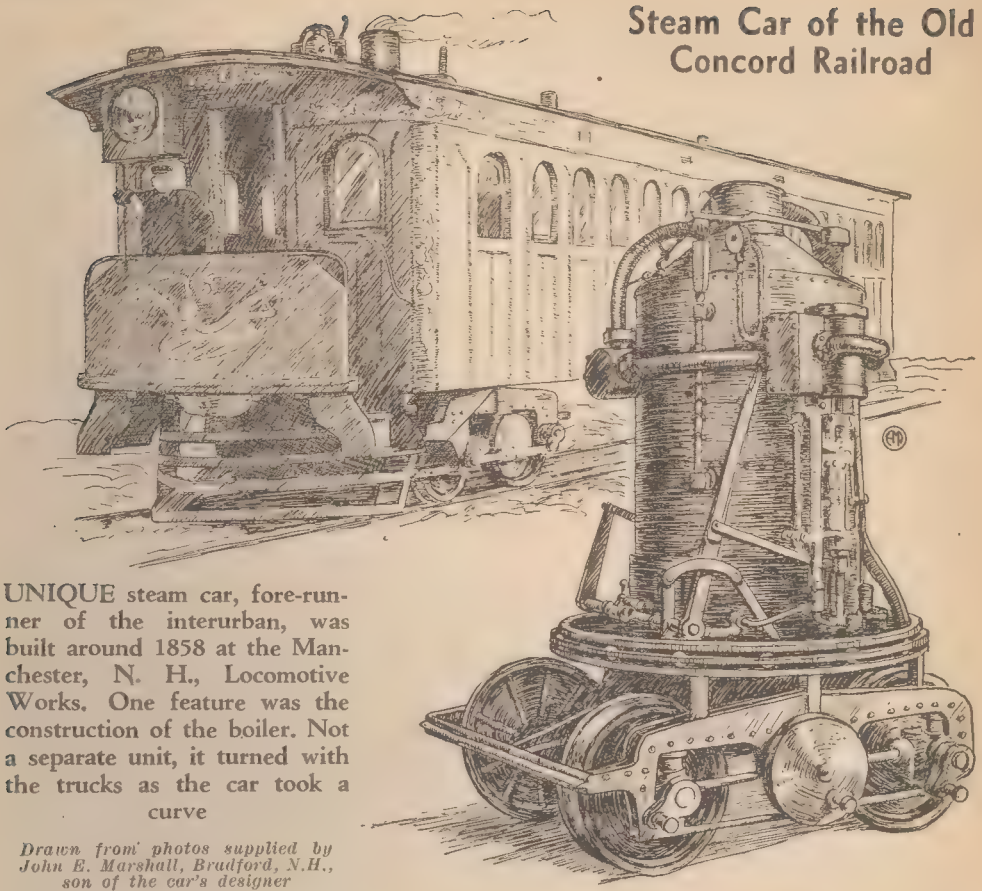
THIS old girl awaited repairs at the C&NW roundhouse, Chadron, Neb., in 1902, after throwing a rod that stripped the right-hand side

6

WHY did the Delaware & Hudson abandon use of the Caprotti valve gear? I notice that their new 4-8-4s are Walschaert-equipped.

Motive power officials have come to consider the

Steam Car of the Old Concord Railroad



UNIQUE steam car, fore-runner of the interurban, was built around 1858 at the Manchester, N. H., Locomotive Works. One feature was the construction of the boiler. Not a separate unit, it turned with the trucks as the car took a curve

Drawn from photos supplied by John E. Marshall, Bradford, N.H., son of the car's designer

Caprotti mechanism too difficult to maintain. Most locomotives are equipped with the Walschaert or Baker gear now, but after the war, look for new and improved poppet valves of domestic manufacture, especially the Franklin oscillating valve gear, which marked up a highly successful record in trials on a Pennsy K-4 in 1939.

7

WERE the cars used on the Erie Railroad when it was a broad gage line wider than those of standard gage?

Passenger cars hauled over the Erie's 6-foot gage had an overall width of 12 feet as compared with the 8½ feet for standard track. Freight cars were probably of standard width, because of interchange with other roads.

8

IDENTIFY the roads operating the most powerful locomotive of these types: 2-8-4, 2-10-2, 4-6-2, 4-8-2.

Wartime conditions have caused numerous changes in motive power: conversion to different types, as well as lease and transfer of locomotives to other roads. According to the best available records, however, here is a list of leaders among the types mentioned, on the basis of estimated tractive effort:

Berkshire (2-8-4): Erie's Class S-2 and S-4, 72,000 lbs.

Santa Fe (2-10-2): Reading's Class K-1-SB, 92,500 lbs. AT&SF 3800, 85,360 lbs.

Pacific (4-6-2): CStPM&O Class E-3, 64,000 lbs. Delaware & Hudson P-1, 59,000 lbs.

OVER the master retarder and on to the intermediate machines, go heavy hopper loads of Pocahontas coal, enroute to market through N&W classification yards at Portsmouth, Ohio

Photo from C. W. Witbeck, West Jackson, Miss.

THE *R. L. DOWLING*, No. 58 on the roster of the LOP&G's predecessor line (see Item 9)

Mountain (4-8-2): Lackawanna Class P-5, 77,600 lbs. Norfolk & Western K-3, 68,880 lbs.

Tractive effort alone is not always a reliable measure of an engine's efficiency, however. Among the Mountain types particularly, the Lackawanna's engine develops a high tractive force as a result of her 63-inch drivers; her horse-power rating would not equal the Boston & Maine's 4100s, for example, which have a tractive effort of 67,000 lbs. and 73-inch drivers.

9

FURNISH brief accounts of the Live Oak, Perry & Gulf and the South Georgia Railway. I understand that these are among the few common carriers in the country still using wood-burning locomotives.

The original section of the LOP&G was constructed by Thomas and R. L. Dowling, owners of a lumber company, at Live Oak, Fla. The road was then chartered as the Live Oak & Perry in 1903. Two years later the Live Oak, Perry & Gulf Railroad Co. was organized, and when operations began, the road ran from Live Oak to milepost 31. The line was extended through Perry to Hampton Springs in 1906. Two trains daily make the run between Live Oak and Perry, pulled by wood-burning engines adorned with the old cabbage-head stacks. The LOP&G has operated continuously as a common carrier since 1905, independent after a brief period (1922-28) under Atlantic Coast Line financial control.

Incorporated as the South Georgia Railroad in 1896 (name changed to present form in 1902), this line ran from Heartpine to Quitman, Ga., with an extension to Greenville, Fla., completed four years later. In 1904 the northern terminus of the road was changed from Heartpine to Adel, and in the same year the line was constructed from Greenville to Perry, where a connection was made with the LOP&G.

Yellow pine is cheaper than coal in this area. Both roads use woodburners; engines enroute are refueled from racks piled with two-foot chunks of pine bought from farmers living along the right-of-way.

10

COMPARE the specifications of the Santa Fe 3100 series with Frisco Lines' 4100s.

	AT&SF	Frisco
Type	2-8-2	2-8-2
Numbers	3100-3128	4100-4164
Cylinders	25x32	27x32
Drivers	57	63
Pressure	200	210
Wt., Eng.	283,700	344,600
T.E.	59,600	62,900
Builder	Baldwin	Baldwin

Locomotive of the Month:

B & M Four-Unit Diesel

FIRST four-unit Diesel-electric locomotives to go into regular service on a New England road are three red-and-gold giants recently turned over to the Boston & Maine at Mechanicville, New York, by the Electro-Motive Drive Corporation. The vanguard of a dozen such machines slated for near-future delivery, each is one hundred and ninety-six feet long, and may be operated either in its 5000-horsepower entirety, or as two double-cab, 2700 horsepower engines.

In all general characteristics, these behemoths are of the standard GM design now being employed by the Santa Fe, the Rio Grande, the Northern Pacific, the Western Pacific, the Milwaukee, the Great Northern, the Erie, the Southern and the Seaboard. Each four-unit locomotive weighs 856,000 pounds, distributed over sixteen pairs of forty-inch wheels. A single sixteen-cylinder, two-cycle Diesel engine is housed in every cab, together with a 600-volt generator whose current is fed to four nose-suspended motors, geared one to a truck axle. To supply fuel oil, reservoir space to the extent of 4800 gallons is available—enough for five hundred miles of sustained running. Supplementary bins hold eighty cubic feet of sand for adhesion at starting and when braking.

Each locomotive is equipped with two bells and four airhorns. The latter are placed in opposed position, permitting a flagman to clearly hear his recall signal. Roof grids, visible in the picture above, make for quick dissipation of electrical energy when the motors are converted into generators on down-grades, thus developing a powerful retarding force which reduces the use of airbrakes.

At starting, a combined tractive effort of 220,000 pounds is available at the draw head—or enough to set more than two hundred and eighty heavily loaded freight cars in motion on level, tangent track. Naturally no such train will be handled, but the vast reserve of power available will be particularly welcome on trans-Berkshire runs between Mechanicville and Boston. A further advantage of the big Diesels is their ability to operate through the Hoosac Tunnel without being towed by electric locomotives. They make no water stops on the two-hundred-mile run.

From the engineman's standpoint, the 4200 and her sisters are principally unique in their cab arrangements. A battery of bull's-eye indicators gives him a complete picture of the performance of his huge charge at all times. They flash such messages as: "Wheels slipping," "Air brakes needed" and "Hot journal."

Electric Lines

Conducted by
STEPHEN D. MAGUIRE

Marker Lamps

By ROY WHITE

LONELINESS and a sense of utter desolation swept over Wally Jones as he stood between the two tracks of the Logan Square elevated structure in Chicago and watched his train disappear southward in the fog. As the full impact of his calamity struck home, his eyes blurred, his slight mustache quivered and the tail lights he was holding sagged dangerously near the third-rail.

"Well, I'll be dogged!" he affirmed with unwanted conviction. The young railroader had lost both his train and his job at the same time. He thought back to the cause. . .

Sixteen minutes previously, Wally had rushed out to this Wells Street-Logan Square train just as the irate old clerk was coming out of the shanty.

"Get a move on, Jones!" the veteran snapped. "Your train is in the station already." As Wally hurried past, he added: "Next time you fail to ride your train in I'll give your trip to the first bench man."

Adroitly, Wally hooked the safety-springs at his gates. The four other men of the train crew, each at his own gates, looked back impatiently. While he worked, Wally shot quick glances about the loading platform. He had remembered tail lights as he passed the lamp shanty, but lighting them seemed a burden to him even when he had plenty of time. An alert man usually could snatch up a set of "glims" that someone had left on the loading platform, or get them off of an

WALLY started down the track in a shambling run

oncoming train. Anyhow, the sky was bright enough this morning to go without tail lights, he was almost sure.

As Wally was opening his ventilators the towerman gave the starting lights, and the cry "Board!" rang along the train. The last-minute rush of passengers filled both of the loading gates which Wally handled. Desperately he peered out over the platform. No lamps were to be seen anywhere. The passengers crowded in ahead of the outstretched arm of the platform man.

"Let's go!" The platform man was brisk and a bit impatient.

With a sigh and a hopeful glance at the morning sun, Wally closed his gates and passed up two bells. But almost at the first turn of the wheels his hopes began to deflate. By the time they reached Western Avenue the sky had become somewhat hazy. Looking east down the St. Paul tracks toward Goose Island, he noticed that the silhouette of the lake-front buildings was entirely gone. To the right, no loop skyscraper was visible. That blasted fog was billowing in from the lake again!

Wally writhed as he reflected that any third-car man who passed the train-master at Marshfield without tail lights was handing trouble a monogrammed invitation. His mind was in a turmoil. He

knew he was going to be on the office list. While they sped by the familiar city landscape, now wraith-like and almost unrecognizable, he tried to figure a way of escape. Should he attempt to create an electrical short-circuit in a heater? That was out. Wally knew very little about "juice." Besides, it wouldn't do any good.

But wait! There was one ray of hope left—just a faint glimmer. As they pulled into Lake Street transfer, Wally glanced up the track opposite them. "Glory be!" he breathed. A westbound Logan Square was coming into the station.

Leaning out over his gate, into the path of the approaching train, Wally flagged the motorman down. A sudden increase of air and a grinding of wheels answered him. Turning about, he opened his gates for the passengers. Then he stepped back to talk to the motorman, two car-lengths behind, who had left his cab and now was looking back from the front platform of his train.

"What is it?" the motorman shouted, obviously expecting an emergency order.

"Let me have your headlights!" Wally endeavored to make it sound official.

The motorman hesitated as he reached for the nearest lamp. "Why? What's the matter?"

"We had trouble. Hurry!"

Wally swung one of his gates open, eased himself down upon the walkway between the tracks and ran back to the head end of the other train. The motorman lowered the two heavy lamps into the eager hands of the third-car man.

"If I get in trouble for this—"

"You won't," said Wally, then amended mentally, "compared to what I am getting out of."

MEANWHILE, up in Wally's train, the fourth-car man was nervously awaiting the signal to go ahead. Just a few feet behind him, on the other train a bell clanged loudly. Thereupon he passed up two bells. The signal flashed up to the motorman, and they were off with sparks spitting from the contact shoes.

Wally turned back with a lamp in each hand. His smile of satisfaction gave way to a spasm of agony as he saw his train disappearing down the track into the mist. He visualized the damning charges: "On line of road during a fog, without tail lights" and "train in motion before gates are closed" and "leaving your train without instructions or notification." It would have been slightly worse for Wally Jones to have assaulted the Superintendent with a sleet scraper, or to have turned a fire-hose on the annual meeting of stockholders, but his relations with the company would be the same in either case.

The face of the third-car man puckered with acute nausea as these thoughts ran through his mind. Now that he had the tail lights, he could not allow his train to get away.

Suddenly he lost all sense of dimension. He became a starving ape-man pursuing a dinosaur with a flint knife in each hand. Swallowing a sob and holding his lamps high, Wally started down the track in a shambling trot.

Jim Murphy, motorman on the Humboldt Park run, gave his train another shot of air and stared through the fog. There it was again, a red light bobbing up and down between the tracks. Now it had disappeared. It was—why, it was a man, a trainman! He brought his train to a shuddering stop close on the fellow's heels. Then, opening his cab door, he jerked out the chock-block and slid back the front door and shouted:

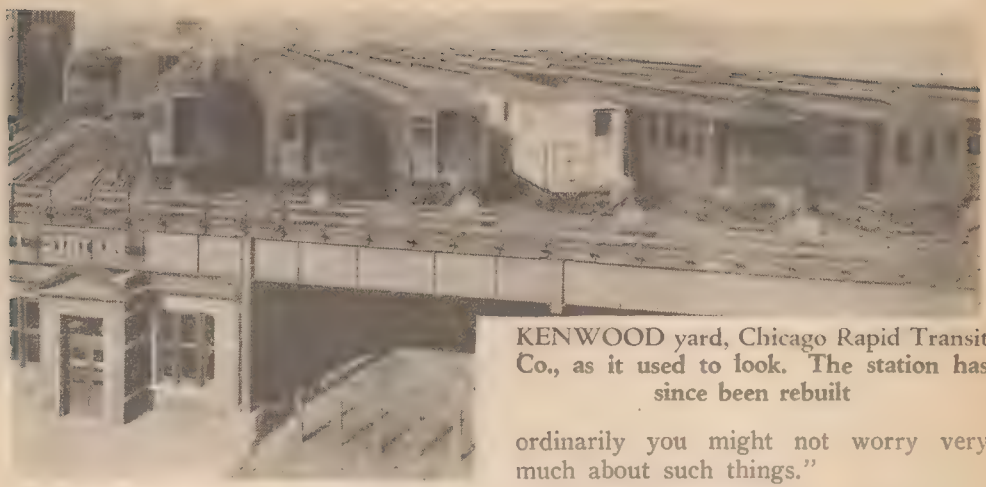
"Hey! Hey, you! What's the big idea?"

Reason returned to Wally again. "We—we had—we had a slight accident," he gasped. "Take me on to my train."

The motorman swung his gate open. Wally set his lamps up on the platform and scrambled after them.

"Be careful!" he warned. "There are no red lights on the rear."

Jim Murphy stepped back into his cab and put the handle down, going ahead cautiously and yet steadily. As he approached Madison Street he could see the lighted train standing in the station, and edged up to within a foot of it. He spoke gruffly to Wally:



KENWOOD yard, Chicago Rapid Transit Co., as it used to look. The station has since been rebuilt

"Get a move on or you'll have the whole line tied up!"

Wally unhooked the cross-chains, swung his lamps across, and stepped ahead upon his own platform. He slipped the lights into their sockets. Then he vaulted across the gate and ran up the loading platform to his own gates. There the conductor and the fourth and fifth car men were in a huddle. Ahead he could see the motorman out on the platform, watch in hand.

"Where were you?" The conductor's voice mingled anger, curiosity and relief.

"Tail lights went out," panted Wally. "Let's get going."

TWO DAYS later the name Jones headed the office list. Wally and all of the train crew had sent in their written reports, but the trainmaster was not satisfied. When Wally came into his office at Marshfield the brass collar was wearing a puzzled look and he motioned for Wally to sit down.

"I don't seem to get this straight," he began. "You say you went back to check your tail lights at Division Street?"

Wally shifted in his seat, cleared his falsetto voice and faced the eyes of the T.M. with an effort.

"Yes, sir," he gulped.

"What made you think they needed checking? Your past record suggests"—the trainmaster glanced at a ruffled sheaf of papers on the desk before him—"that ordinarily you might not worry very much about such things."

Wally sat straighter. "Well, er, I thought maybe I'd better be a little more careful."

"A very commendable attitude, Jones. The company quite agrees with you." A trace of smile lit up the official face. "Then what happened at Madison Street?" He shot a keen glance with the question.

"I—uh—stepped back again."

The brass collar nodded thoughtfully. "Uhuh! For six and a half minutes, according to the other reports."

Wally fidgeted on his chair. "Yes. You see they had gone out—both of them—and—uh—my matches were wet."

"Perspiration, I suppose?"

"Yeah, that's it. So I borrowed a match from a passenger."

The trainmaster was all sympathy. "Too bad your passenger didn't have two of them."

Wally rushed on with description. The culprit could see it clearly now. "Yeah. He had just one. It nearly went out. That took a lot of time."

"Evidently." The T.M. glanced at his reports again. "You didn't think to get the name of this passenger, did you?"

"No, why should I? Nobody was injured or anything."

"And it was not an unusual occurrence, Mr. Jones."

The boss was helping now, Wally noted with satisfaction. This was going to be easy.

"Yeah. So after I lighted them up, I hurried back to my gates and came on downtown."

"Not quite ten minutes late." The T.M. tapped on his desk. "Did you—ah—check the lights after that?"

Wally pondered. "I think I did. I wouldn't want to say for sure."

"Oh, no, no!" the inquisitor cut in quickly. "Don't try to say if you are not certain."

Wally was all penitence. "I am very sorry for the delay, but on these foggy days a fellow has to be careful."

The brass collar smiled enigmatically and looked out at a passing Garfield Park train. Maybe it reminded him of the time when he was a third-car man, twenty years ago. He heaved a sigh as he laid the papers back with the finished business.

"Well, Mr. Jones, I guess there is no great harm done; but follow your dispatcher's orders as to taking tail lights, and if they fail you, turn them in." He scribbled on a slip of paper. "Here is your O.K." he said, handing Wally the coveted return to good standing.

"Thank you." The young employe took the slip in a hand that trembled imperceptibly. He turned to the door. As he was opening it, his boss spoke again.

"Tail Light—I mean, Jones—don't make it necessary for me to tell you about this matter again. You might get a different reception."

"Oh, no, sir! No, sir!" Wally promised, and closed the door.

Seated just outside the door was a culprit like himself. Jones grinned to see another sitting on the "worry bench" and waved his O.K. jubilantly.

"Hiyah, Tail Light!" the man greeted.

"Fry, you sinner," said Wally, and raced down the stairs two at a time.

Tail Light Jones crossed Marshfield, entered the elevated station, flashed his pass before the agent, called his number and ran up the stairs. As he waited for the Logan Square to take him out to the terminal, he saw Murphy pulling in on the head end of a Humboldt Park train. Murphy made a short stop, let the window down and stuck his head around the corner.

"Well, kid, how did you come out? Head up or feet first?"

Wally smiled broadly and waved his slip. "O.K., Murphy," he replied.

Two bells dinged above Murphy's head and the mortorman automatically put the handle down. Then he raised a hand in parting salute.

Nice fellows to work with, Wally decided; every one of them, even the bosses. He hummed a bit while waiting for a train which would take him to the terminal, to find out what he'd work that evening. If it proved to be an early trip he really wouldn't need any tail lights.

Car-Barn Chatter

Roy White

BY WAY of variety, we have opened this month's department with a juice fiction story. Our new author, Roy White, lives at 1605 S. California Ave., Chicago. Roy has been employed by the Chicago Rapid Transit Co. since June, 1925, as a trainman, platform man and information clerk. We'll be watching the Readers Choice coupons *(page 145)* to find out what you think of him as a writer. If you enjoy White's stuff, you may be seeing more of it from time to time.

Roy was born November 23rd, 1902, near Winnemac, Ind. "My sister says she will never forget that winter," he tells us, "when the old sow died, dad had to shoot our best horse, old Nell, and I arrived to join the other six children."

William E. White, the father, was a railway mail clerk on the Wabash, but quit because of ill health and became a school teacher. Roy's older brother, Ralph, worked for the Chicago Elevated ten years, resigning in 1930, and is now pastor of the First Church of the Brethren in Roanoke, Va. Roy

himself has written a bale of verse. You've just read his first attempt at fiction. It is based on a real incident in which one of Roy's fellow employes earned the nickname "Tail Light."

Asked about his own experiences, the author said: "I have been in one smash-up and flippd the rear of a high-balling train thirty feet above the concrete, where few men could do it and only a fool would try." Sounds like a story, Roy. Why not write it up for us?

"What car is this?" asks Edward Frank, Jr., 1866 N. Bissell St., Chicago

* * *

Steve Maguire

"HOBBLE-SKIRT" cars, discussed here last month, were hampered by narrow doors. Thus comments Felix E. Reifschneider, formerly with the Manila Electric, in the Philippines, now employed by the ODT at Washington, D. C.

Felix points out that such doors slowed up the loading and unloading of cars almost as much as the low floors assisted them. Then, too, he goes on, the stepless equipment had a relatively small capacity.

It was rather unfortunate for Frank Hedley and J. S. Doyle, both of New York City, who are credited with having invented this type car, that their brain-child was completed in 1912, just before the low-floor motor was designed. Had these men been able to employ the latter, it would not have been necessary for them to use the maximum-traction truck reversed, with the large wheel forward, which made the leading wheels project out in front of the car body. Although covered by a metal apron, this arrangement caused many accidents in congested Manhattan streets.

"The cars had GE-216 motors, an excellent type," Felix writes, "and when the cars were scrapped, these motors and the compressors were salvaged. There are two versions of the last days of hobble-skirt trolleys. Some people say the bodies were put on barges, towed out to sea and dumped overboard. Others declare they were cut up for scrap. What really happened to them?"

Felix also recalls the trolley rides he took between New York and Boston.

"One delight of this journey was the optional number of routes you could choose from," he says. "I made three round trips using a different route each time. Even at that, several lines had been abandoned when I took the rides. Between Bridgeport and Hartford, for instance, were at least three optional routes. These were (1.) via Stratford, Derby, Waterbury, Milldale, Plainville and New Britain; (2.) via New Haven, Cheshire, Milldale, Plainville and New Britain; and (3.) via New Haven, Wallingford, Meriden, and Middletown. All these lines were on Connecticut Co. track, except between Waterbury and Milldale which was operated by the W&M Tramway, an independent concern.

"It was also possible to go by trolley from New London directly north to Worcester via Norwich, Plainfield and Thompson. And from Providence you could connect with Worcester via Woonsocket and Uxbridge. Between Hartford and Springfield were two routes, both operated by the H&S. One was on the east side of the river, the other on the west. I forget which of the two lines was abandoned first."

The fact that the Connecticut Co. trolley ran on steam tracks, although it always

MILWAUKEE-BOUND interurban car of the Milwaukee Electric Railway & Light Company

Photo by Stephen D. Maguire

ONE-SPOT of the Philadelphia Suburban Transportation Co

seemed a little hazardous to Felix Reifschneider, was not uncommon in New England and elsewhere.

"Between Middletown and Meriden, Conn.," he writes, "trolleys ran on some steam trackage. Ocean Electric ran the LIRR between Far Rockaway, N.Y., and Hammels. The Morris County Traction ran on DL&W rails at two different points. Atlantic City & Shore cars run on the P-RSL for a distance between Atlantic City and Pleasantville, N. J. The Denver & Interurban operated on steam rail between Denver and Boulder, Colo. The Dallas-Terrel interurban was almost entirely on MKT right-of-way. The Poughkeepsie & Wappingers Falls ran over Central New England on a short branch north of the former city. The Virginia Public Service uses C&O track between Phoebus and Buckroe Beach, Va. And these are just a few examples of electric trackage rights on steam railroads."

* * *

FAN PUBLICATIONS. An all-time roster of Lehigh Valley Transit is presented in *Bulletin 48* of the Central Electric Railfan's Ass'n, 1240 Edison Bldg., Chicago. Copies may be had at 50 cents each while they last. Written by Howard P. Sell of the LVT's home town, Allentown, Pa., this interesting 16-page brochure includes some fine interurban shots.

An 8-page history of "The White Line," popular streetcar route of bygone days between Hoboken and Paterson, N. J., which eventually merged into the Public Service network, is covered in a recent issue of *The Marker*, neat little publication of the Nat'l Ry. Historical Society, North Jersey chapter. This feature, including photos, was contributed by George W. Walrath, the chapter's vice president. Copies may be obtained at 15 cents from Matthew Vosseler, 912 South Ave., Plainfield, N. J. The same chapter will soon publish an 8-page account of a famous old trolley system, the Allentown & Reading Traction, by Fred M. Barber.

It's a credit to juicefans groups that, even in wartime, they find opportunity to compile and publish historical reference material.

* * *

GOOD NEWS. Public Service is resuming streetcar operation from Jersey City to the southern tip of Bayonne, N. J., on tracks of the Jackson route, abandoned years ago. The Jackson route now operates only to the Jersey City city line; but when trolley busses took over, rails were left on remaining portions of the road to Bergen Point. Thus for the third time since Pearl Harbor, Public Service has extended its rail operation.

* * *

"BEATING THE TIMECARD," R. T. Gunnison's true tale in our last month's issue, prompted C. William Witbeck, Box 2501, West Jackson, Miss., to inquire why we had never printed a mention of Capital Transit car 713, which runs in Washington, D. C.

"From a class of 64 cars," Witbeck states, "this one was picked and rebuilt in very modern style. I had a few rides on the 713 I shan't forget. For one test trip she was loaded with kegs of spikes and track bolts for ballast, and we headed out on the long run to Beltsville, Md. This is private right-of-way which partly parallels the Baltimore & Ohio. We were trying out the 713 for speed. On the stretch paralleling the B&O we caught up with and passed a B&O Limited. We were clocked at 76 m.p.h on open track laid with steel that looks no heavier than the 35-pound variety."

Our correspondent recalls another fast gallop. "This was on a snowy night. Operating as a tripper to keep the slots open, we rolled from the Mt. Pleasant terminus to Union Station in 13 minutes—regular running time is 29 minutes! Although we went over 16 switches and crossings, we made no safety stop. Our top speed was registered on Connecticut Avenue in downtown Washington, right in front of the swanky Mayflower Hotel, where we hit 64 m.p.h! Had any division official known of this speed there might have been two men less on the payroll."

Photo by J. L. Diaz, 4519 W. Jackson Blvd., Chicago

THE BLUE ISLAND EXPRESS, a four-car Illinois Central train on the Blue Island branch, with car 1204 in the lead, crosses the Chicago Short Line's Riverdale route

PREFERENCES. From a reader who was a Seattle streetcar motorman 30 years ago, we have the following answer to Boyce Harrell, who recently suggested that we print more steam railroad operating problems and less material about streetcars and boomers falling in love:

"I don't agree with Mr. Harrell at all, being very much interested in both steam railroading and trolleys. The first department I read in the magazine is *Electric Lines,* then the fiction and true tales, and lastly the articles on steam operation. Mr. Harrell, being a fireman, can understand such problems, but lots of us readers want *Railroad Magazine* for entertainment as well as educational value."

* * *

JUICEFAN DOG mentioned by A. J. Franck in Dec. '43 *Spot* department, certainly knew his trains, recalls Arthur Waehner, ticket agent on the Chicago, North Shore & Milwaukee at Kenosha, Wis. Every morning but Sunday that animal would meet the CNS&M interurban piloted by Motorman Charles Litchfield. Although many trains passed the farm where the dog lived, he seemed to know Litchfield's instinctively. The farmhouse was situated near Racine, Wis., a short distance back from the tracks. As soon as the right train came by; at high speed, that dog would run toward it, retrieve the newspaper that was tossed off and carry his little bundle into the house.

"This performance, which I witnessed years ago," Arthur writes, "delighted the passengers. Eventually Mr. Lichtfield took his pension, after serving the North Shore Line for 39 years, and the farmer moved away; but the dog made frequent trips back to the old locality. I'm sure he missed Litchfield's train."

The ticket agent also tells us:

"If ever an article in your magazine made me feel at home, Robert Schmid's '36 Years of Engine Pictures' in the December issue did just that. Schmid says his interest in rail pictures was aroused at an early age in Indianapolis at a point where Big Four, Pennsy and CH&D tracks were but two blocks apart. That is exactly the spot where I got my start, in 1916."

Arthur lived for two years on S. State St., Indianapolis, and spent much of his time around the Big Four roundhouse, later becoming a "news butcher" on trains.

"Those are days the juicefans would love to live over again," he sighs. "The Traction Terminal Bldg. in Indianapolis was one of the world's largest and busiest interurban stations. Trains swarming out it like bees from a hive traveled in every direction. I remember the luxurious parlor cars on the well-known limiteds, particularly the sleeper to Louisville, with its longer berths and windows in the uppers. With gas rationing, what wouldn't those communities give to have such service back again?"

* * *

SAN ANTONIO RELIC. The last passenger trolley in San Antonio stopped running April 29th, 1933, and was placed in the Witte Museum in that city. Lt. George Roush, EP Army Air Field, Eagle Pass, Texas, informs us that very recently this fairly modern car, complete and ready for operation, was taken out of the Museum and given to the Girl Scouts for a clubhouse.

With the trolley shortage as critical as it is, George was about to suggest that this car be made available for passenger service, but the inopportune gift apparently has put an end to that hope. Possibly the San Antonians did not realize how urgently rolling stock was needed elsewhere. Would it be asking too much of the Girl Scouts to hint that, even at this late date, they might still turn their "clubhouse" over to some transit company which is searching frantically for equipment to haul war workers?

* * *

BOOMER TROLLEYS. Two-thirds of Halifax, Nova Scotia, trolleys came from lines in other parts of Canada and the U.S., writes Stanley Borden, 23 Moran St., Halifax, N.S. As far back as 1926 Halifax received cars from other lines, including Baltimore Transit, Toronto Transp'n Commission, Cape Breton Tramways, Sherbrooke St. Ry., and Bakersfield & Kern Electric. These B&K cars travelled over 4000 miles from California in making the trip to Halifax.

"Nova Scotia Light and Power now has 82 Birneys in service, which is the largest fleet of such cars ever to be accumulated," adds Mr. Borden.

Sgt. Walter Zackon, APO 412, Camp Chaffee, Ark., tells us that Oklahoma City has become a camping ground for boomer trolleys.

They recently have acquired Schenectady Ry. interurbans 651-655 and Dayton & Xenia cars 162 and 164. The latter two are in service with the lettering "Property of U.S. Navy." Besides these cars, their interurbans 221-224 were received from Indiana Service Corp. of Fort Wayne several years ago.

With so many reports of car movements coming as a result of the present conflict, we hope some industrious reader will make a tally sheet of the boomer cars so that, after the war, there will be a record of all the changes.

* * *

EDMONTON INTERURBAN, listed by Andrew Merrilees as a Canadian juice road, was operated by two gas-electrics, never having become a trolley line, writes R. J. Walker, 10138-83rd Ave., Edmonton, Alta., Canada.

"This line ran from 124th St. and 118th Ave., Edmonton, through the outlying district of Calder where the barn was located, and on to the town of St. Albert, total distance of about 7 miles." Mr. Walker advises. "They had two big, green, oil-electrics which connected with city cars in Edmonton. Unfortunately, the line had only been operating a short time when flames destroyed both barn and cars in 1915. The section to St. Albert was torn up after the fire, but the local Edmonton street railway system took over the portion to Calder and electrified it."

* * *

SHORE LINE. At the time it was built, the Shore Line Electric was planned as a through fast interurban between New York and Boston, writes J. W. Cheney, 191 Hartford Rd., Manchester, Conn. Although a comparatively short-lived company, it operated over a large territory during its years of existence, Mr. Cheney says, and in its heyday at the height it leased the eastern portion of Connecticut Co. lines. A strike in 1919 hastened its end. Although a small section of track was reopened in 1923 and used for a few years, the rest of the line ceased operating.

* * *

CONEY ISLAND. "Who recalls a trolley line, on the Steeplechase Pier in Coney Island, that ran from Steeplechase Park to the end of the pier, carrying passengers to and from the boats of the Iron Steamboat Co?" asks A. J. Frank, Box 171, Richmond Hill, N.Y. Melville Langhans, now living in Chicago, should be able to answer this one. Mel has long specialized in rail history of Brooklyn, N.Y.

STORMS along the eastern coast have been playing havoc with the Atlantic City & Shore Railway, reports Charles Werntz, Jr., 11N. Hanover Ave., Margate, N. J. On Main Avenue near the Inlet at the northern end of the AC&S the line was under water for two days, and when the ocean receded it was found to have deposited 3 or 4 feet of sand on the tracks. Now, a little sand on the rails is useful when you are climbing a grade, but several feet of it on a level road is not so good.

While the loop at the end of the line was inundated and since single-end Brilliners could not be turned around, the management used a dozen old double-end city cars and a few interurbans to serve the rest of the line. But the older cars soon began to break down, and the interurbans were needed on the Ocean City route; so there was nothing to do but run the Brilliners, operating them backward half of their trips with the emergency controls at the rear of the car.

For a day or so this operation was continued, passengers sitting backward. There were two-man crews, one man at the rear end control, the other taking fares at the doors. It was impossible to keep on schedule, but by using all the help available and working overtime, a fairly good service was provided.

Charlie adds: "The AC&S men and management deserve a big hand for their fine work, instead of the grumbling that the general public gave them."

* * *

SWEPT BY FLAMES, the old Court Flight incline railway in the heart of the Los Angeles business section was totally destroyed the other day. Beginning in 1904, the two cable cars on this popular route up the east slope of Bunker Hill, 350 feet or so, carried an immense number of passengers; but in 1942 operation was suspended because of a manpower shortage. Finally, someone carelessly tossed away a lighted cigarette; the entire structure and the two cars went up in smoke.

* * *

ELECTRIC AIR LINE. Several questions on the famous Chicago-New York Air Line remain unanswered, despite the fine brochure recently published on that subject by the Electric Railroaders' Ass'n, writes Frank Korten, 31 Mechanic St., Hartford, Conn. Neither Mr. Korten, who was one of the stockholders of the Air Line, nor Lt. Comdr. E. J. Quinby, ERA president, have been able to find any information of the line's progress in the 2 years between March, 1911, and January, 1913. During that time the gap between East Gary and Woodville Jct. was closed. Who handled this construction and the direction they moved are veiled in mystery. Can any reader tell us?

Another question concerns the merging of the Gary & Interurban with the Air Line, some time between 1911 and 1913. How was it arranged? Then, too, the actual date when service was discontinued on the La Porte-Gary "main line" is unknown to Mr. Korten. Who can help him to tie up the loose ends in the story of this famous fiasco?

Blake A. Mapledoram, chief engineer of the Electric Air Line, contributed an illustrated feature article on the subject to the May '33 *Railroad Magazine*. He was then living at Monticello, N. Y.

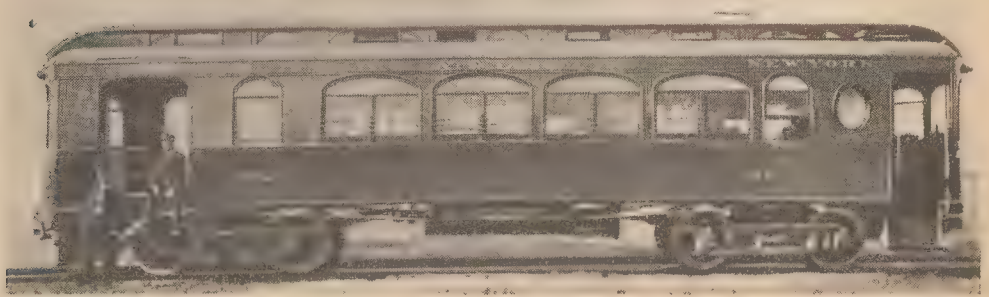


Photo from Wilbourne B. Cox, 2608 E. 73rd St., Chicago

CAR of projected but never completed Chicago-N. Y. Air Line

Vanishing Tail Lights

Sam Never Forgot the Night He Watched a Shy Kid Copy His First Train Order

By JOHN PAUL MILLS

WHEN Sam Gilmartin was a jaunty young man he came to the village of Admire as station agent and lightning slinger for the GC&O Railway. That was in 1894. Admire was then a mere crossroads with one general store. Twenty-five years later there were about two hundred houses, five stores, a barber shop and a new, rambling, two-story hotel, also stockyards consisting of numerous pens and a loading chute. Those few scattered cows grazing on Comiskey hills had grown into massive herds.

The town was set up on a hill some distance from the station. In Sam's youth his duties had been light; but with a large stock business and the incoming freight shipments swollen to meet the demands of an expanding population, the job had gradually taken on the aspects of a treadmill. Late one chilly afternoon in March, just before buds began to show in the hawthorne bush beside the old frame depot, Sam was bending over his desk as usual, figuring out monthly reports. His gray leonine hair was astraggle. A worn expression dimmed the cold blue eyes that peered through steel-rimmed glasses.

The agent seemed to ignore the monotonous clatter of telegraph equipment, until suddenly he caught his own call. Then, whirling around in his chair, he reached over to the key and answered. Writing rapidly, he copied the message on a pad and okayed it. The news pleased him. He sat up and gazed out the bay window in which the telegraph table stood. Even if he could have seen the old familiar hawthorne bush from where he sat, he would not have noticed it.

"Because of increased telegraph business at your station," said the message, signed by J. M. Potter, Superintendent, Comiskey Division, "a second-trick operator will be sent to aid you. Put him to work at 4 p.m. today."

Sam rubbed his chin meditatively. He was glad the boss had decided to give him help. He needed it. He was tired and the years were beginning to tell on him. Sam speculated on what kind of op they were sending. An experieinced man, he hoped. His leathery features did not change perceptibly with the promise of relief. Towns-

people of Admire called him "Granite Face" because, no matter what happened, Agent Gilmartin had never been known to betray emotion in public.

The mail carrier was coming down the platform now. Granite Face could hear the cart's iron wheels squeaking in the cinders. Glancing at the clock, he saw it was time for the westbound passenger train. He got up and tossed a shovelfull of coal into the pot-bellied stove. It was good to have a little fire these days. The train whistled for a stop. Grabbing his official agent's cap from the nail, he went outside to man the station truck.

There was nothing to unload. So he pulled aside the heavy truck and chained a wheel to hold it still. Then he watched a dozen or so shivering passengers get off the train, greeting several with a wave of the hand. He knew them all. That is, all except the freckle-faced boy of seventeen or eighteen. This lad, in a mackinaw, walked along the platform uncertainly, while the other folks turned toward the town. Sam heard the boy ask:

"Are you the agent?"

The lad placed his cardboard suitcase and lantern on the platform and lifted troubled brown eyes.

Granite Face answered: "Yes, I'm it."

"Well," said the boy in a timid voice, "I'm the new operator."

"Come on in!"

Sam led the way inside. The stranger picked up his grip and lantern and followed.

"What's your name?" Sam inquired, replacing his cap on the nail.

"Tommy Hardwicke." The brown eyes flickered. "I'm new. This is my first job. The chief dispatcher said he'd try me to see what I could do. I've been studying down at Middleton."

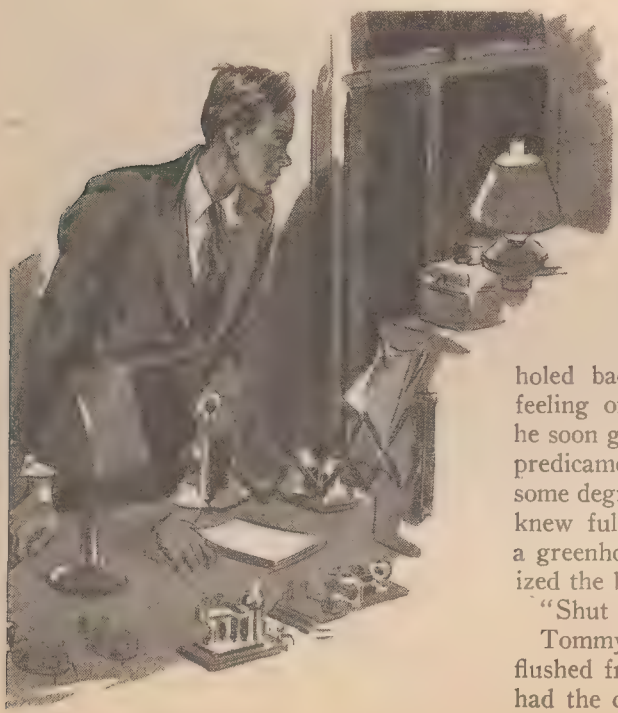
"I see."

Granite Face nodded. He saw a lot; this kid wouldn't be of much help for a long time. He wondered why they hadn't assigned someone with experience.

"I can telegraph pretty good and they said it wouldn't be such a hard job," the boy went on apologetically, glancing at the clock. "I go to work at four?"

"Yes," Sam told him. "First you'd better go look for a place to stay, and then come back. It's after three now."

Tommy picked up his suitcase. He looked about in a manner that indicated he wasn't sure of himself, and went out.



THE AGENT seated himself at his battered, time-worn desk, with its high pigeonholed back, and resumed his work. A feeling of dismay swept over him. But he soon got over feeling sorry for his own predicament and began to sympathize in some degree with Tommy Hardwicke. He knew full well the obstacles confronting a greenhorn on this job. Before he realized the boy was due, Tommy burst in.

"Shut the door!" Sam ordered.

Tommy obeyed. His pinched face was flushed from exposure and his mackinaw had the collar turned up.

"It's getting colder," he said as he pulled off the coat.

"Sure is," Sam grunted.

Glancing out a window, the agent saw snow flurries, which a north wind soon whipped into swirling eddies.

"The local hasn't come yet," he went on. "I don't like that.

"The local?"

"Yes." Sam eyed the boy sharply. "You understand what a freight local is, don't you?"

"Yes, sir. They handle local merchandise and do the switching, don't they?"

He knows that much, at least, Granite Face reflected. Then, aloud: "It'll be your job to check the freight when the local runs on your time. Ever check any freight?"

"No," Tommy admitted, with obvious reluctance, "but I'll try."

Sam groaned inwardly. He had hoped to get away to supper early. It had been a long time since he'd left before dark. The local had been late for months.

"I'll show you this once," he offered. "You'd better fill the lamps and light your semaphore light and put it up on the pole. The local will be along soon, so you haven't much time."

It was necessary to show Tommy where the lights and oil were kept in the warehouse. The young fellow did a good job and managed to place the signal lamp up on the lofty pole. After the lights had been cared for, Tommy sat down at the telegraph table and stared at the falling snow.

Sam listened to the voice of the wires as he worked on the book before him. The local was reported out of Miller. He heard Tommy report its approach with a shaking hand. At the train's whistle, he closed the book and rose to his feet.

"Local's comin' in," he said, and reached for his coat. "You get the seals and seal record book."

"Seals?"

"Yes, car seals. Over there on that file hook." Granite Face indicated a batch of them which hung on a nail. "The book is the only one in that large pigeon-hole."

Tommy put on his mackinaw.

"What do we do with these things?"

"Seal the cars we open," snapped the agent, eyeing his helper curiously.

The conductor and brakeman of the local met them on the platform, which was now covered with snow. Sam had to show Tommy everything. The kid simply had no idea what was expected of him. In spite of his mild irritation, Granite Face rather enjoyed the situation. He was putting himself in the boy's place and living his own early days over again.

It was dark, a snowy dark, when they finished wheeling the last truckload of freight into the warehouse. The local had departed.

"Think you can do it by yourself tomorrow night?" Sam asked, as he locked the warehouse door.

"I don't know, sir, but I'll try."

AGENT GILMARTIN stirred the ash-covered fire. The wind had begun to howl and the old office was drafty.

Taking off his coat, he sat down and sorted out waybills which the local had left to cover the freight unloaded. He put the freight bill numbers on them. The clattering instruments told him that two freights were coming—one from the east, the other from the west—and would meet at Admire.

He saw that Tommy also had been listening. The boy seemed to be uneasy. Evidently Tommy felt that the handling of train orders was a very responsible act and great care was necessary to get them correct; one error could cause a wreck, with loss of life. The agent sensed that Tommy was thinking along these lines and probably hoping he wouldn't have to take any orders for the two trains.

Having finished numbering the bills, Sam took them and a pad of freight-expense slips and, going over to the telegraph table, placed them before the new op, asking:

"Did you ever make out expense bills?"

"No, sir, Mr. Gilmartin, but I guess I can. It says on the form what to do."

"You'll learn. Just follow the form and

be sure to put everything on it. Above all, get the charges right."

Granite Face returned to his desk and sat down. He watched surreptitiously as Tommy tried to make out a bill. The boy fumbled so much, he could hardly write. Sam felt a little sorry for the kid.

"I'm going to supper," he announced. "This being the first of the month, I'll have to come back and work a while tonight."

The lad glanced up. Sam observed a look of relief sweep over the freckled features. He would return that night, not because he had to but because of Tommy's uncertain attitude. However, he didn't intend to let the boy know. Granite Face wasn't like that.

He was unaware, of course, that as Tommy watched his slightly bent back disappear through the door a panicky feeling seized the kid. Nor could he guess that his own fixed expression and gruff manner had increased the boy's lack of self-confidence.

Sam ate a supper of beef and beans, with apple pie and coffee, in Admire's only hotel. On his way back to the depot, fighting his way through the falling snow that had now become a blizzard, he found on the east siding a freight that he knew was the one mentioned in the order, and decided it was waiting for a meet with the eastbound train.

Rounding a corner of the station, he saw Tommy hunched over the telegraph table. The boy had a train-order pad on the table and was attempting to copy a message from the noisy telegraph instrument. Bill Young, conductor from the freight which stood on the siding, was seated in back of the office near the stove, together with the engineer. Both were warming up by the fire.

There was a rumble in the west. Granite Face knew it must be the eastbound freight coming down the hill. As he strode through the waiting-rooom, he wondered what kind of order Tommy was trying to copy and why the red signal was not displayed. Under the rules there was no excuse for failure to do so.

Relief lighted the skipper's face as Sam hove in sight.

"Hello, Gilmartin!" he greeted.

"Hiya, Young!" the agent acknowledged, shaking the snow off his coat and hanging it up. "I hear Number 52 comin'."

"Yeah. We've got a meet with them here. They are a long way out and if we don't get some time on Number 20 we're going to be stuck."

The engineer nodded.

"I think he's gettin' some time now," Granite Face told them, but he didn't step across the room to peer over Tommy's shoulder at the train order the new op was painfully endeavoring to copy.

Young and the engineer were both watching. The latter said, motioning toward Tommy: "Looks like he's scared."

The boy's eyes met Sam's and asked a silent question. Granite Face answered in a low voice:

"It's all right, kid. I'll listen."

SAM went over to his desk and sat down. Hearing the order, he knew from what the dispatcher said that it had been sent previously. The order gave the westbound freight time enough to make Comiskey for Number 20. After several vain attempts Tommy managed to make DS understand he had the order and would complete and okay it for the westbound train.

Sam pretended to be very busy on a book when Tommy arose and handed the flimsy to Conductor Young. Even though the weather was cold, he noticed that Tommy was sweating.

"Here," chattered the new op. "You—you've got until ten-fifty to make Comiskey for Number 20."

Tommy stumbled back to the telegraph table. Young stood up. Swearing softly, he took the order to Sam and flattened it out under the light.

""Is this supposed to read *ten-fifty?*"

"Ten-fifty," the agent said, his gaze on the figures in the book before him.

"That's right?" the runner chimed in, and Sam nodded.

Sam closed the book and put it in a drawer.

Number 52 rumbled along then, the white snow sweeping before it like a curtain.

"Here we go," said the engineer, springing to the door and buttoning up his coat as he went. The skipper followed him out.

Tommy Hardwicke stood in the telegraph window shaking as though he had a chill. Sam went over to the stove, sprinkled a layer of coal over the fire, and stood watching the boy. He was thinking of his own first train order, back in 1894, how frightened he had been at that time.

The kid was looking at the westbound freight as it pulled out of the siding. His breath was short and labored. The train order he had copied so arduously lay on the table. He read it, tracing under each word with a lean finger.

Sam eased over to him. The frightened Tommy seemed unaware of Sam's approach. He did not seem to feel the hand that was placed on his shoulder for a moment. He appeared to be considering the red markers, or tail lights, of the westward train as the caboose vanished into the snowy darkness.

The agent glanced down at the order on the table. There was something pathetic about it. The writing was so shaky that Granite Face could hardly make it out. No wonder Conductor Young had cussed under his breath.

As Sam was deciphering the message, Tommy's eyes met his. The emotion that surged through Agent Gilmartin then was not revealed on the surface. But mutual understanding linked the man and the boy, and Tommy was visibly strengthened. The new op sat down again and attacked the freight bills.

"That's fine!" Sam commented gruffly. "I'm goin' home now. See you tomorrow."

TWENTY more years passed. It was February, 1939. The same old office, the same antique desk, the same pot-bellied stove. Sam Gilmartin, now white-haired, thin and hollow-shouldered, was perched stiffly on his long-familiar chair. However, there were new desks in the office. There were also new chairs, and three new men. A telephone stood on the table where the telegraph instruments had been. The years had brought many changes, including fresh coats of paint on the depot, inside and out; but the old hawthorne bush was still there.

Sam, through thick-lensed glasses, was reading a letter he'd just received from J. M. Potter, the old Division Superintendent at Comiskey, the same official who had sent Sam his first helper back in 1919. The message was brief but friendly. It announced that Mr. Potter was retiring, effective March first, after fifty-five years of service for the GC&O Railway, and added that he, Sam Gilmartin, would also begin taking his pension on the same date, with a clear record, after forty-five years on the GC&O. Following that news was the usual blarney about "enjoying a well-earned rest" and "personal regards."

Damn it! Granite Face didn't need a rest. All along he had been dreading the day when he'd "get the rocking chair," as the boys expressed it. He'd often told himself that pensioned men usually didn't live long. They died eating their hearts out for something useful to do. His gaze turned to the window beside him, and for a few moments he was lost in reverie. Then he turned to another letter, one that lay unopened on his desk. He read:

"I regret to learn that just as I take charge of the Comiskey Division you are retiring. . . . I shall never cease to appreciate your kindness to me the night I copied my first train order. . . ."

Yes, Sam remembered. He did not need to look at the signature, Thomas Hardwicke. His bent shoulders straightened. In memory he stood beside a freckle-faced boy watching the tail-lights of a freight train disappear into the snowy night. He'd never forget. And now he knew that all too soon his life's tail-lights would be vanishing. But for the first time in years Sam Gilmartin's lips parted in a smile of sheer contentment.

Cumberland & Pennsylvania shops at State Line, Pa.; from James Kauffman, Mifflin, Pa.

On *the* Spot

Rails and Fans Sit in with the Editorial Crew to Swap Experiences, Offer Ideas and Settle Arguments

GIRLS are being trained for rail jobs in increasing numbers, replacing men called for military duty. A typical case is that of Miss Barbara Jeanne Donaldson, 17-year-old Illinois Central agent at Clay, Ky. (pictured here). After attending the operators' school at Paducah, Ky., for 14 nights at two hours per night, Barbara was a student op for six weeks at Dawson Springs, Ky., passing her exam on May 31st. At one a.m. next day the girl began work as operator in Morganfield, Ky. Barbara was then 16. She held jobs at three other places, became 17 on August 6th, and was promoted to agent at Clay ten days later.

Among her duties Barbara handles freight and express; makes daily, weekly and monthly reports, and compiles Railway Express Agency balance sheets and station accounts.

"Working on a railroad, you discover something new all the time," she writes. "That makes the job interesting. I am getting the feeling of responsibility that more young people should have. My biggest problem is those monthly reports."

Barbara sprang from a railroad family. Her father, Paul F. Donaldson, is a machinist in the IC shops at Paducah. Her grandfather, A. T. Donaldson, now retired, worked as boilermaker and assistant boiler foreman for about 38 years on the IC, the C&EI, the MoP and the IC again. One of Barbara's uncles, H. E. Seitz, furnace operator in the IC blacksmith shop at Paducah, has just completed 27 years of continuous service without injury. A cousin of hers, James L. Seitz, is a blacksmith welder on the Union Pacific at Omaha, Neb. Another uncle, S. H. Thompson, served the L&N for 15 years as assistant chief clerk. A third uncle, V. W. Thompson, worked 12 years in NC&StL coach-finishing department.

* * *

SWITCH KEY of the Sicilian Railways has just been received by Elton M. Eversole, retired railroader, 58 W. Elm St., Chicago 10, from an overseas American soldier who read about Eversole's collection in *Railroad Magazine*. Elton is

said to have the world's largest assortment of switch keys, some representing roads he has worked for, others given to him by folks who've heard of his hobby. The latest acquisition came from T/S Robert Sechrist, ASN 13129025, APO 512, c/o Postmaster, New York City. Bob writes:

"I enjoyed your article in *Railroad Magazine* so much that I am sending you a Sicilian switch key to add to your collection. I am a fireman off the Pittsburgh & Lake Erie Railroad. My home is in Beaver Falls, Pa., but I am now serving with a Railway Battalion in Sicily. Before arriving here, our outfit completely took over and operated 200 miles of meter-gage road in North Africa. We are the first unit of its kind in U.S. Army history to operate a foreign road.

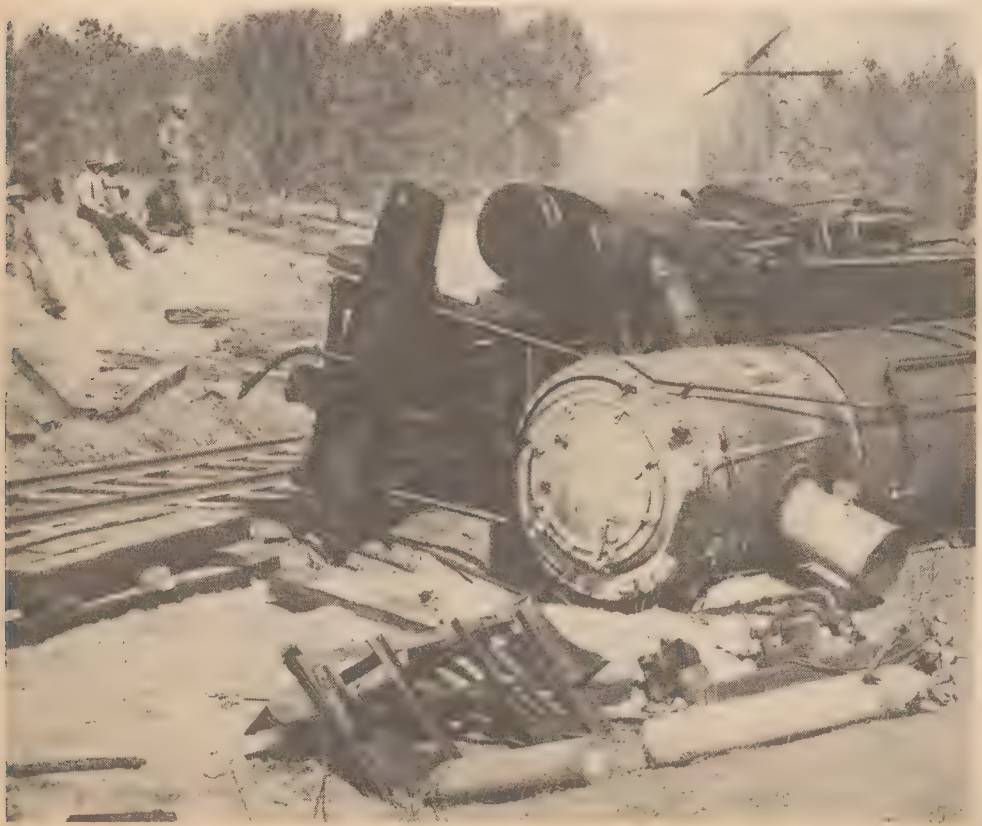
"Conditions we ran into in Africa and again in Sicily are somewhat the same as you encountered fifty years ago in the States. Locomotives are small and very poor steamers, and have no shaker-grates. The fireboxes leak like sieves. Coal is extra bad. Headlights and cab lights are unknown—in fact, we had to put up with pretty much of a blackout.

"Some engines have air; others are equipped with vacuum brakes. No air in the trains. In Africa we used one Arab brakeman to every three or four cars. Two long whistle signals was the call for brakes; one for release. Average tonnage was around 250 to 300. This may not seem like much to you, but it was really quite a train.

"There's no such thing as a 'hog law' in overseas railroading. On many a trip I've seen the sun rise and set twice! But all in all, I've gained a lot of experience and have learned to appreciate what you older heads went through before the days of the Brotherhoods. I hope before long I can send you a switch key from Berlin—if there's anything left of the German capital by the time I get there."

WRECKED CARS and engine No. 6942 of a Southern Railway train, sprawled beside tracks near Sandersville, Miss., January, 1941

Photo from C. W. Witbeck, Box 2501, West Jackson, Miss.



GUADALCANAL'S "golden spike" was made from a captured brass Jap shell case, reports Staff Sgt. Solomon Blechman, a railfan with the Leathernecks in the South Pacific. Sol gets *Railroad Magazine* more or less regularly as he hops from one island to another, and wants to hear from other readers. Letters sent to him at 530 Palmer Ave., Mamaroneck, N.Y., are forwarded by his father.

He tells us that the so-called Guadalcanal, Bougainville & Tokio Railroad, on Guadalcanal, operated its first train almost immediately after the last spike had been driven. This was an engine hauling a string of flat-cars loaded with oil drums at about ten miles per hour.

"The GB&T is 1.22 miles long," Sol writes, "28-inch gage, running inland from a specially-made dock on the beach, with spurs to various dumps. Seabees who built it may have set a record in fast railway construction, finishing the job in three days, plus two days for the pier terminus. Powerful floodlights were used during night work. At least one builder had previous railway experience: Lt. Commdr. Clare A. Frye, who worked on a Santa Fe grade-crossing project in Oklahoma City, Okla."

* * *

ANOTHER railroader now with the armed forces is Gnr. Fred H. O'Neil, 77th Btry., RCA, 3rd Fd. Rgt., Can. Army Overseas, Central Mediterranean Forces. Before joining the Army, Fred was a Canadian National switchman at Hamilton, Ont. While on duty in Sicily, he wrote:

"I am sitting in the hot Sicilian sun trying hard to write a letter of thanks to one of *Railroad Magazine's* authors, William J. Parry, Canadian National engineer, for sending me copies of *Railroad* after I had been without home news for more than three months. I can't tell you how much I enjoy this reading matter.

"The Germans put up a big fight here, but the 8th Army was too much for them. I must say our lads did a wonderful job. We're

FROM MEMORY'S ALBUM. Linwood W. Moody made this shot of the two-foot-gage Monson, now abandoned, showing the station, engine-house and stub switch at Monson, Maine

now in a kind of rest camp waiting for our next move. The narrow-gage railway here has already started running again. Trains creeping up and down hills are funny to look at, but their engines seem to be up-to-date, while the airbrake system is somewhat like ours at home."

* * *

"LET'S have more of Bill Parry's stories," urges M. B. Betts, 294 Hale St., London, Ont., Canada; now in the Canadian Army, with four years of CNR seniority as caller, brakeman and switchman. He adds: "I have worked with Bill on freight jobs between Windsor and London and I sure recognize the country he writes about. I miss my old railway pals. Would like to hear from rails in military service."

* * *

LAST 2-FOOT GAGE. About four months after the 60-year-old Monson Railroad had discontinued service, the townspeople of Monson, Maine, were rather surprised to hear the familiar whistle of a narrow-gage locomotive and to see a train running on the abandoned line, reports Dan E. Edgerton, Box 1438, Portland, Maine.

But the final train did not run long. Early last December its husky crew completed their job of taking up the rails and hauling them to Monson Jct. They were loaded onto standard-gage flatcars of the Bangor & Aroostook and, together with the Monson's locomotives and other equipment, were shipped to the Rochester (N.Y.) Iron & Metal Co., to be melted into scrap, thus ending America's last two-foot-gage service.

Hal Morrill, Monson ex-Superintendent, supplies these facts: The line was built by Charles and Bob Sawyer of Bangor, Maine, being started in the summer of '84. The first two engines were Forney-type wood-burners, built by Hinckley. No. 1 was named for Harvey A. Whiting of Lowell, Mass., the road's first President, and No. 2 for George S. Cushing, General Manager. The original rolling stock consisted of a combination baggage and passenger car, 14 flatcars and 2 boxcars—all built by Laconia (N.H.) Car Co. Later two of the flats were rebuilt as boxcars.

Both engines had spark arresters on the stacks. These screens often became plugged with creosote. It was necessary to stop the train and make a fire beside the track to burn off the creosote before they could proceed. At first the Monson had no regular snowplow, but did have a "butterfly" that could be attached to the front of either engine. Mr. Morrill ordered a plow built in 1916 and he bought two new locomotives from Vulcan Iron Works, Wilkes-Barre, Pa., in 1912 and '16 respectively. The 4-spot, built in 1916, remained in operation until the line folded up.

Among the Monson's early personnel were Rodney C. Penney, engineer; George Boone, fireman; W. L. Estabrook, conductor; Tom Elliott, agent; Fred Jackson, Superintendent, and John F. Kimball, company treasurer. Hal Morrill, who began firing for the Monson in 1884, was promoted to the right-hand side in '86, and later succeeded Mr. Jackson as Super, while George A. Matthews followed Mr. Cushing as G.M.

The road's main business was slate, but it did have passenger service until December

Railroad Photographic Club, 47 Royal St., Allston, Mass.

CPR-CNR POOL TRAIN, ***The Canadian***, pulled by Hudson-type engine 2810, speeds through the gathering shadows of evening, past Summerlea to the junction point at Dorval, Que.

'39, when Morrill cancelled passenger tariffs and retired at the same time. The line was owned by Monson Maine Slate Co., which is now using motor trucks. As we go to press, all the rails have been torn up and the old right-of-way is blanketed with snow.

* * *

WANTED: Old celluloid toothbrushes and discarded bits of tinfoil. Send 'em to Ed "Dad" Williams, 1444 Morro St., San Luis Obispo, Calif. Dad is a retired SP hoghead. He sends the wornout toothbrushes to San Quentin penitentiary, where an inmate makes beautiful rings from them. The tinfoil goes to the San Francisco Shriners' Hospital for Crippled Children. There it is sold, Dad informs us, the proceeds being used to buy crutches, braces, toys, etc., for deformed boys and girls. We hope that rails will aid this old Coast Division engineer in spreading sunshine where it is much needed. Don't throw away that toothbrush or tinfoil! Like waste paper, these items have salvage value in wartime.

* * *

ARTHUR W. HECOX finds military service quite different from his work on the Katy, the Santa Fe, the Western Pacific and (for 18 years) on the Espee's Sacramento Division. His present address is M2C, 12th U.S. Naval Construction Bn. (Special), Co. A, Platoon 1, c/o Fleet Post Office, San Francisco.

"Here at the West Coast port where I work we are awakened by a bugle instead of a

ONE-SPOT, the *Ellington*, built by Grant in 1889, on the 3-foot-gage Missouri Southern (now abandoned)

Photo from C. W. Witbeck, Box 2501, West Jackson, Miss.

roundhouse whistle," he writes. "The firing of rifles takes the place of the rumbling of yard goats and the banging of boxcars hitting one another in the train yard. Here we check freight to and from ships instead of boxcars. I might add that in my hut are three men who enjoy *Railroad Magazine*."

Our readers recall Arthur Hecox as the author of "Boxcar Art" *(July '39)*, "A Staff Operator's Story" *(March '40)* and "Roseville Train Yard" *(Oct. '40)*

* * *

NEW YORK CENTRAL SYSTEM

BECAUSE he preferred steam railroading, Ray Nicholls, R. D. 3, Oneonta, N.Y., didn't stay very long on the trolley job he told about in this department last month. In 1915, when he was 20 years old, Ray was quizzing the agent in a transfer station at Superior Ave., Cleveland, between the New York Central and the Nickel Plate. The youth wanted to know about freight cars, bonded rails, etc. Into this confab walked the Central's master mechanic, who asked Ray where he was working, then gave him a job of firing. On this occasion the agent showed the M.M. that, although the NKP rails were not bonded and had no signals or anything else electrical connected with them, they had picked up enough current to ring a doorbell.

"I made one student trip with the oldest fireman on that division," Ray goes on, "and came back with another grayhead. Both recommended me so highly that I was put right on the board. The engineer on my first trip to Toledo was an Irish redhead named Malone, a taciturn fellow who did not say a civil word to me that I can remember, except to tell me to get some waste. Alas! there was none—the enginemen had filled their lockers with it when they reported for duty."

Ray recalls he was nervous on that run and raised a hump in the front end of the firebox before the engine even pulled out of the roundhouse.

"At length we got our coal and water and hooked onto our train. Then a brakeman brought up the orders from the rear end and we whistled off. At Broadway we were held for about 40 minutes for the Pennsy crossing. By that time I was worrying about the front end that was shaking down tight with the green coal of the hump in the fire. Old heads had warned me not to use the hook

Photo from R. P. Middlebrook, San Diego, Calif.

VETERAN of the New York Elevated, this engine was photographed at San Diego, Calif., in 1917, when she was No. 1 on the now defunct Los Angeles & San Diego Beach Railway

for fear I would clinker the fire, so I asked Malone which grate-shaker would loosen it. His answer was to leave the blankety-blank thing alone. This he followed up by asking if I wanted to get both of us arrested for making too much smoke in the city limits. I replied: 'Shucks! Everybody's asleep at two a.m. Who's going to arrest us?'

"The old 3900 was a dandy engine," Ray continues. "Even with the front end of the fire half dead, the clock still read a full 180. Still, I was not satisfied. Orders or no orders, I used the hook; and by the time we had gone under the main stem at Linndale she was burned clean through. That engine was a great old girl! We tore down Sandusky hill with the Johnson bar seven notches ahead of center and the throttle nearly out. The harder Malone mauled her, the better she steamed.

"When we arrived at Toledo, I reported to the clerk before washing the cinders off my face and hands. Later, when I was passing his booth, he called me over and inquired who had fired that engine. I pleaded guilty, to which he responded: 'Nicholls, either you're a damned liar or you're damned good, for Malone is death on new firemen but he didn't say a single cuss word about this trip.' And did I feel good? But on the return trip—"

Whoa, Ray! Save that till next month. We have a lot of other choice material for this issue. Your life story will be continued in April.

* * *

TEXAS had three or four other railroad tunnels beside the one pictured in our Oct. '43 issue, reports Pvt. Wesley Winant, U.S. Army, Student Officers Det., Brook Field, Texas. These were located on the now abandoned Fredericksburg & Northern, a 14-mile line connecting with the Texas & New Orleans (SP).

* * *

"CAJON PASS" and "Pacific Electric," two picture stories in our January issue, were the favorites of W. B. Garner, 501 Arrowhead Ave., San Bernardino, Calif., "because," he says, "they are right here at home."

"Herbert Sullivan certainly snapped fine shots of the pass," Garner continues. "I was surprised to know there was such a man hereabouts. I had never heard of him, although I am a native of this section. I worked on the signal gang at Cajon in 1924, my first rail job. (Cut shows emblem of the Brotherhood of Railroad Signalmen of America.) There is no better place than Cajon to watch trains and listen to them. Those sand-

WINTER'S FRETWORK of snow-covered trees and hillsides makes a pleasing pattern for this Norfolk & Western freight train as it speeds its vital cargo through the valley west of Roanoke, Va. To produce such a camera study you need a combination of skill, knowledge, patience and good luck, plus a feeling for the picturesque

swept rocks around which the trains wind are marvelous. I have eaten lunch under the bridge over which No. 3839 is shown passing. However, your caption, stating that pushers are usually cut out at Summit and return light to Cajon, is incorrect. I never knew of a pusher going on with the train past Summit or of engines returning light only to Cajon—although they *could* back down, and on rare occasions an engine *will* back to San Bernardino. All helpers, except those doubleheading passenger trains, are cut off at Summit and return to San Bernardino, unless they are needed at Victorville, or Barstow. As a rule, freights and passengers are helped from Victorville to Summit."

Garner refers to our statement about cutting a helper into the middle of the train, under the second Cajon Pass picture. He says this practice has been discarded since the war began, to save time; and adds:

"On the first trip of the *Super Chief*, the observation car's rear platform was decorated with flowers. The first exhaust from a 1300 series pusher sent quite a shower of blossoms into the air."

Turning to runaways, he says: "These used to happen rather often around Cajon Pass; but the last one was in 1924, when a gravel train went off the track into Cajon Creek. Our signal gang was working at Devore that day and had quit earlier than usual, as we would have to walk a mile or so back to our outfit cars at Cajon. This was supposed to have been our last day at Cajon, because we had run out of materials; but the wreck made plenty of work and we stayed the rest of the summer. The engine had kinked three or four miles of new steel, which had to be relaid from Pine Lodge to the wreck. Traveling over this rail in a motor car was like riding an amusement park concession."

Garner says San Bernardino is one of the very few points where you can see steam, electric and Diesel engines all on the same train.

"Many times the PE will pull out of town for Los Angeles with a Southern Pacific 1700 or 1800 class Mogul doubleheading in front of a 1620 class PE electric motor, and a Diesel 1650 pushing on the rear. This pusher goes only to the top of the Rialto branch, where it cuts off and returns light. The PE invariably runs a motor with the Moguls, so as to operate the wigwags."

HOMER KEITH'S article, "Student Fireman," in the Oct. '43 *Railroad Magazine*, has been reprinted in pamphlet form by the Frisco Lines and is being distributed to firemen all over the system regardless of their length of experience. This news comes from E. C. Hollaway, himself a Frisco fireman, 408 W. 8th St., Quanah, Texas, who adds: "Such articles are helpful to us new men." Hollaway also tells us that the hoghead he fires for wants to get some poems written by Bob Streeter, "poet laureate of the Frisco," now retired and living in California. Who can help him?

* * *

"VANISHING TAIL LIGHTS" *(page 116)* is the first story we have published from the pen of John Paul Mills, of Starks, La., who began his railroading as station helper at Fontana, Kan., on the Frisco.

"I worked on that job 16 hours a day," Mills reminisces, "handling local freight, carrying mail, checking baggage, doing janitor labor and walking three miles thrice a week to fill and light switch lamps. But in some odd fashion I managed to learn the telegraphers' craft."

Our future author's feet got itchy on this monotonous job; so, having a brother-in-law firing for the Missouri Pacific at Osawatomie, Kan., he made tracks for that town and hired out there as a Western Union messenger boy under Guy Williams, wire chief.

"A fine op and a good teacher Mr. Williams proved to be. In time I became a signalman under the manual block system then in use, and later a full-fledged brass pounder. My brother-in-law, John Punshon, was promoted to the right-hand side. Later, his son John went braking. Both are still working out of Osawatomie. Meanwhile, I hired out to the Frisco again, then the Rock Island, and the Kansas City Southern. The KCS is now putting up with me for the third time."

Besides railroading, Mills has dabbled in journalism, writing for various weekly newspapers and formerly owning and publishing the *New Era* of Dawson, Okla. He distinctly recalls having read *Railroad Magazine*, whenever he could get it, from as far back as 1910. Gene Autry, the cowboy singer and

movie actor, once was a railroad telegrapher, working third trick at Pierce City, Mo., on the Frisco, in 1922, while John P. Mills was on the second trick.

* * *

TRAVELING via the Atchison, Topeka & Santa Fe Railway to the three cities in its name cannot be done in the exact manner outlined by A. R. Wildhagen of Champaign, Ill., in *Less Than Carload Lots*, January issue, according to James L. Abernathy, 1513 W. 9th St., Kansas City, Mo. and Edward Mahoney, 76 Inverness Dr., San Francisco 16, Calif.

"Wildhagen is correct about the motor car from Atchison to Topeka," James writes, "but his next-assertion is wrong. *The Chief* has never run through Topeka; it uses the Ottawa cutoff. Where your correspondent got his time of night I do not know. After arriving at Topeka at 10:15 a.m. the traveler between the points mentioned may board No. 3, the *California Limited*, leaving at 10:20 a.m. and reaching Lamy at 9:43 the next morning. Wildhagen asserts *The Chief* is one of only two trains stopping at Lamy. However, Lamy is a regular daily stop for Nos. 3, 7 and 19 westbound and 22, 20, 4 and 8 eastbound, besides being a conditional stop for 21 westbound."

Edward comments: "*The Chief* has never operated through Topeka except in emergencies. In any event, there would be no point (except through preference) in anyone waiting at Topeka for a night train. I have worked for the AT&SF at both Atchison and Topeka and on the New Mexico Division, which includes the city of Santa Fe."

* * *

WANTED: Information about "Big Arthur" Allen, who went to work as engine wiper on the New York Central's Hudson Division in 1897 and was pulling the *Empire State Express* at the time he died. The appeal comes from his grandson, Sgt. Louis Fernandez, 32803274, Station Hospital, Ward G, Bear Field, Fort Wayne, Ind. Louis fired on the Central's Hudson Division for a year and a half, later worked as block operator on the Pennsy.

"I held a regular job at Sunnyside, the world's largest passenger yards," he writes. "Our interlocking tower, Q, is probably the stiffest job on the New York Division. We handle an average of 75 trains in eight hours, all trains for the West and South being made up here. Not only did we deal with making them up but we had to put the GG-1 electric engines back on the trains so they can haul 'em over the division. We handled half a dozen different roads—Pennsy, New Haven, Lehigh Valley, Long Island, Southern and Atlantic Coast Line—and if you think it's easy playing with them you're crazy. A few bad moves would tie up a lot of traffic in and out of Penn Station.

"Today I am in the 745th Railway Operating Battalion, working with an Army crew on the Pennsy's Fort Wayne Division."

* * *

"PRINT more train-order problems," urges Dr. W. C. Harman, Box 15, Dolphin, Va. "I am an old-time operator and can still sling lightning pretty fair, after 15 years of railroading as op, yardmaster and dispatcher on three roads, besides op for Western Union and Postal, but graduated in medicine at 35 and have been at it ever since. Of all the material in *Railroad Magazine* I enjoy most Dispatcher Josserand's occasional articles on 'How Well Do You Know the Book?' " Okay, Doc, we'll print more of them in the near future.

* * *

LEROY PALMER, Union Pacific agent-op at Elgin, Nevada, is still receiving mail from readers who enjoyed his "Memories of the Old St. Paul" *(Dec. '43)*. A soldier in a military hospital wrote that Zella Lindeman, one of the girls mentioned by LeRoy, was a much-loved aunt who died in 1936. A veteran conductor said he was headshack on the gravel train that had the cornfield meet near Freeport, Ill., a near-collision which caused LeRoy some anxious moments many years ago.

* * *

BOSTON & MAINE drawbridge No. 8, which we stated under a picture in our December issue was "over the Mystic River in southeastern Connecticut," is really located between Charlestown and Everett, Mass., about two miles from Boston's North Station, asserts Hugh C. Moson, AS, USNR, Navy V-12 Unit ROTC, Kirkland House F-32, Harvard University, Cambridge 38, Mass. (Whew! What long addresses some of these service boys

ONE OF THE MEN standing beside this rotary plow on the old Denver, Leadville & Gunnison in March, 1897, near the east portal of Alpine Tunnel, is Charles C. Squires, now living at 4808 Melrose Ave., Oakland 1, Calif., who assisted in writing the tale on page 82

have!) Hugh says the bridge was burned one Sunday in June or July, 1941, and he was working in the section gang that helped to clean up the mess.

* * *

RAIL FAMILY. George McPeek, 130 Greenwood Ave., Montebello, Calif., is an ex-conductor off the now forgotten Chicago, Peoria & St. Louis. His grandfather, D. S. McPeek, worked on the old Gravity Railroad in and near Scranton, Pa. Two uncles, William C. and Amos G. McPeek, were Erie conductors. A cousin, Dan McPeek, and an uncle, William Kimble, and a cousin, George Wheeler, also were Erie men. The father of our correspondent, Asa, and his brother Frank were in NYS&W train service. George McPeek says he wants to hear from any of the fellows he used to know when he lived in North Paterson (now Hawthorne), N. J., or who worked with him on the NYS&W or the Lehigh & Hudson River.

* * *

PHOTO of Susquehanna engine in our November issue recalls a distinction that this locomotive had when it hauled most of the prominent Federal officials from Washington, D.C., states Amos Chamberlain (principal, School 24), 42 Broadman Pkwy., Jersey City, N. J. The occasion was the funeral of Vice President Garrett A. Hobart at Paterson, N. J., in the fall of 1899. A long train bearing President McKinley, his cabinet, members of both houses of Congress and the Supreme Court, and other notables was brought over the Pennsy from Washington to Jersey City, thence to Paterson via the NYS&W by engine 28. Jerry Haycock was the engineer on that occasion, with Amos's brother Frank firing.

* * *

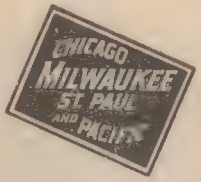


PHOTO of Milwaukee engine 336 after she had blown up in 1939 outside of Elgin, Ill., published in our December issue, was taken behind the Bensenville, Ill., roundhouse, in the opinion of William F. Brechlin, Jr., Amm., 6th Div. Naval Air Sta., San Diego, Calif.

"I remember the explosion rather well," recalls Bill, who used to be a mudhop on the CMStP&P. "Dad saw the wreckage and told me the details. He's been with the Milwaukee close to 38 years and is now running an engine in the Bensenville receiving yard, part of which is shown in the picture. The train was an extra, with 39 empties. It left Galewood yards at 1:30 a.m., destined for the division point at Savanna, Ill. At 4:30 it was pulling up at Alanora yards, three miles west of Elgin, when the boiler let go.

"The engineer, George C. Nelson; the fireman, Patrick J. Nangan, both of Chicago, and the head brakeman, George J. Hachel, of Elgin, all were killed instantly. A large hole was torn in the roadbed, blocking traffic in both directions. Superheater units were thrown about 100 feet ahead of the engine. Conductor Ambrose Grady, of Mont Clair, Ill., and the rear brakeman, Walter Dorr, were hurled to the floor by the force of the emergency brake application and were slight-

ly injured. The tender and head car were derailed. So far as I could learn, the cause of this explosion has never been determined."

* * *

OLD DEPOT of the Cincinnati, Hamilton & Dayton in Cincinnati had somewhat the appearance of a church, declares G. Anderson, 608 N. State St., Chicago. After the CH&D was taken over by the B&O, the edifice was torn down and the trains used Central Union Station, which has since been replaced by Cincinnati Union Terminal.

The building of the latter structure, almost inaccessible, played right into the hands of bus outfits, according to Anderson. The old Central Union was within a short stroll of downtown, but the new station entails a bus ride (fare ten cents) to reach the heart of the city. To walk out of the place after dark is to risk breaking your neck, Anderson claims. You might walk off the curb and hit the pavement, as the grounds are inadequately lighted and it is necessary to feel your way around. The nearest street is a block away.

* * *

ANSWERING W. J. Snell's challenge in Dec. '43 *Spot* department, "Where can you find a more circuitous intrastate route than the 664.8-mile zigzag of the AT&SF between Paris, Texas, and Longview Jct., Texas?" W. B. Garner says: "Between Paisano and El Paso, Texas, is 211 miles via the Southern Pacific, while between the same points via Santa Fe is 900.6 miles, which is 689.6 miles further, or 205.2 miles more than Snell's figure. Of course, there would be the technicality of traveling through New Mexico, yet the points are within the same state. With some of the California tariffs, for instance, a rate is considered intrastate even though the rail line may cross over the state border for part of the distance."

We now hear from a retired Louisville & Nashville engineer, Morris Bud Donovan, 2804 Madison Ave., Covington, Ky., regarding mileage on the L&N.

"From Birmingham Ala., to Calera, Ala., is 34 miles on our Birmingham-Montgomery Division, while the distance between the same two points on our Alabama-Mineral Division is 184 miles. When a crew from Birmingham arrives at the Calera end of their division they are just 34 miles from their home terminal, Birmingham. The A-M Division trains use six hours and 55 minutes on the trip from Birmingham to Calera, while the main-line crew takes only 55 minutes between those points."

Morris mentions another oddity: "We have a station on the Birmingham-Mineral Division where two *northbound* trains could have a head-end collision in front of the Bessemer, Ala., yard office! Who can beat this one?"

* * *

SEABOARD and Atlantic Coast Line boys just can't agree. The latest blast comes from S/Sgt. John E. Stone, Btry. C, 639th AAA (AW) Bn., Fort Fisher, N.C., as follows:

"V. E. Unmissig said in the December issue that the ACL runs the 215 miles between Richmond, Va., and Rocky Mount, N.C., in three hours and 25 minutes. The distance is really 135 miles; maybe the *215* was a misprint. The Seaboard's *Meteor* takes only three hours and 25 minutes between Richmond, Va., and Raleigh, N.C., 160 miles. So I think the SAL is somewhat faster to run 25 more miles in the same time."

Before being inducted in the Army, John fired passenger on the Seaboard's Virginia Division.

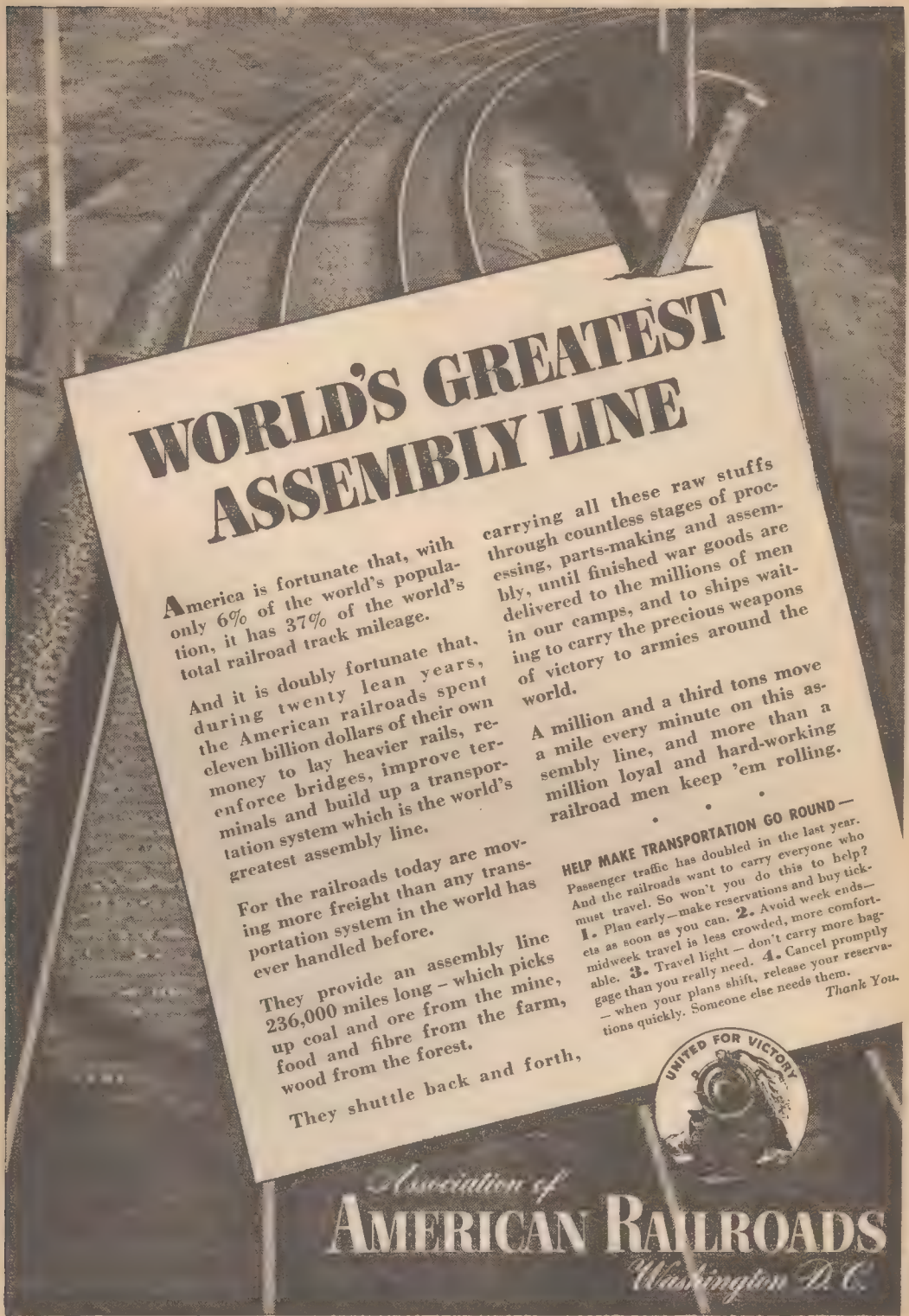
* * *

"CONFEDERATE soldier's grave at Allatoona Pass, Ga., which was pictured by Joe Easley in 'Along the Iron Pike' *(Jan. issue)* reminds me that my father, John S. Boyd of Co. K, 4th Minn. Inf., was at Allatoona that 5th day of October, 1864, and witnessed the fighting which was, I believe, responsible for that unknown grave beside the railroad track," writes Donald A. Boyd, 300 Irving St., San Francisco 22. Donald is an employe of the Pacific Fruit Express Co.

"As I recall the narrative," he relates, "Sherman's food supplies had been gathered at Allatoona, and both the Union and Confederate commanders knew their value. No doubt that is why so terrific a struggle took place. If this had resulted in a Confederate victory, it is very doubtful if Sherman's march to the sea could have been made when it was.

"Hardly a man on the Union side escaped death or injury that day. My father's right hand was badly hurt by a shell fragment.

"The ration sheds stood just east of the



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They provide an assembly line 236,000 miles long – which picks up coal and ore from the mine, food and fibre from the farm, wood from the forest.

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• • •

HELP MAKE TRANSPORTATION GO ROUND—

Passenger traffic has doubled in the last year. And the railroads want to carry everyone who must travel. So won't you do this to help? **1.** Plan early—make reservations and buy tickets as soon as you can. **2.** Avoid week ends—midweek travel is less crowded, more comfortable. **3.** Travel light – don't carry more baggage than you really need. **4.** Cancel promptly – when your plans shift, release your reservations quickly. Someone else needs them.

Thank You.

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ONE-CAR TRAIN jogs up Mt. Washington in the picturesque White Mountains of New Hampshire

Western & Atlantic Railroad (now NC& StL) track. A Confederate lieutenant tried to burn them. My father watched him start across the track and saw him fall with a bullet in his forehead. It is barely possible the grave holds that very officer—although, of course, many others died in the vicinity."

* * *

ODDITIES. The other day two Pennsy freight cars, each bearing the identical number, 359640, rolled into the yards of the California Shipbuilding Corp. at Wilmington, Calif., a plant with an outstanding record in building Liberty ships for the U. S. Maritime Commission. George A. Horton, Calship traffic manager, admits he has seen many strange happenings but never before had he seen or heard of two cars from the same railroad, with the same number, arriving from different sections of the country loaded with unrelated products.

"Anything can happen now," he muttered weakly. "They can even put wings on a tanker and I won't say a word."

The foregoing item, verified, comes from W. E. Waste, general manager, Marinship Corp., Sausalito, N.Y. Another rarity is reported by C. G. Kingston, conductor on the Spokane, Portland & Seattle Ry., 3725 N.E. 16th Ave., Portland 12, Ore.:

"On the night of November 24th, 1943, I picked up two cars for train 293 at Willbridge, Ore. Coupled together, both contained shipments to the same consignee from the same consignor. Both bore the identical numbers, Soo Line 176022 and Union Pacific 176022. The chances of such a combination occurring again are too remote to be computed."

* * *

GEORGE H. PUTNAM, 28 Hill St., Gloversville, N.Y., who worked for the Fonda, Johnstown & Gloversville from '92 till his retirement in 1938, has a huge collections of pictures and clippings covering the entire history of the FJ&G as well as pictures of many small abandoned roads, we learn from Gorton A. Hamilton, 93 W. Fulton St., Gloversville. Gorton corrects a misprint in our Dec. '43 issue which referred to George H. Putnam as "George Hill." Mr. Putnam worked for the FJ&G as a waterboy, fireman, trainman, extra conductor and baggage-car operator, serving on both the steam and electric divisions.

* * *

LOADED with pig-iron, two freight cars rolled into a bog on a C&NW branch line in 1921, the roadbed having been undermined by heavy rain. Brass hats figured the salvage cost would be prohibitive, so they let the stuff stay where it was. But when the war created an abnormal demand for metal, officials decided to reclaim the pig-iron—which they did, 100,000 pounds of it, buried in the swamp 22 years. The job took two days. Our information was contributed by a railfanette, Lois M. Drueke, 8038 Floral Ave., Skokie, Ill.

RAILCATS. Many readers have called our attention to feline pets that have established themselves on railroad property, but space permits us to mention only a few. Walter C. Thayer, Great Northern section man, Box 927, Chelan, Wash., tells us that *Skipper,* at the GN depot in Wenatchee, Wash., sleeps on the trainmen's register book.

From J. L. Watson, 1016 W. 53rd St., Los Angeles 37, we learn about *Capitan,* black-and-white habitue of the Santa Fe's ice plant at Hobart, Calif.

"When *Capitan* traveled," Watson recounts, "he did not walk the ties but almost invariably walked on top of the rails, using his tail as a balance. Although he often went into the grass for field mice he was never known to have left the right-of-way. And he seemed to like trains. *Capitan* always met me at the ice-plant garage just before midnight when I went to work and would trot along beside me into the engine room for his rations. The last I saw of this cat was on the night of September 3rd, 1940. What happened I will probably never know, although I walked the right-of-way a whole week searching for him."

Yes, railmen can become quite attached to their pets. Genevieve E. McDermith of the *Rio Grande Green Light* staff, Alamosa, Colo., reports that *Thomas Boomer,* a cat, makes his headquarters in the San Luis Central roundhouse and rides engine cabs between Center and Monte Vista, Colo., "paying no attention to the Government's plea that pleasure traveling be curtailed." In fact, Rudy H. Morgan, SLC trainmaster, got special permission from the road's vice president, F. C. Krauser of Denver, for *Thomas Boomer* to ride with engine crews. The SLC is a 15-mile freight feeder line for the Denver & Rio Grande Western.

Boots, a tan and tiger-striped pussy, has raised 150 kittens in a desk drawer of John Bettis, Boston & Maine yardmaster at White River Jct., Vt., declares the *B&M Employees' Magazine.* This animal first appeared in the yard eight years ago, riding in a boxcar of a northbound freight like a hobo. She is a rare specimen, having a total of 32 toes—as have her progeny—and is known to railroaders passing through the junction,

Why Man's Prayers Did Not Stop Hitler

Millions of people daily practice meditation, prayer, new thought and other spiritual exercises. For many years people of good will have been praying for the overthrow of Hitler, Hirohito and what they stand for. Why has the answer been so long delayed? Why do so many other prayers remain unanswered? Why does calamity often befall us in spite of our prayers?

Thirty years ago, in Forbidden Tibet, behind the highest mountains in the world, a young Englishman named Edwin J. Dingle found the answer to these questions. A great mystic opened his eyes. A great change came over him. He realized the strange Power that Knowledge gives.

That Power, he says, can transform the life of anyone. Questions, whatever they are, can be answered. The problems of health, death, poverty and wrong can be solved.

In his own case, he was brought back to splendid health. He acquired wealth, too, as well as world-wide professional recognition. Thirty years ago he was sick as a man could be and live. Once his coffin was bought. Years of almost continuous tropical fevers, broken bones, near blindness, privation and danger had made a human wreck of him, physically and mentally.

He was about to be sent back to England to die when a strange message came—"They are waiting for you in Tibet." He wants to tell the whole world what he learned there, under the guidance of the greatest mystic he ever encountered during his 21 years in the Far East. He wants everyone to experience the greater health and the Power which there came to him.

Within 10 years he was able to retire to this country with a fortune. He had been honored by fellowships in the World's leading geographical societies for his work as a geographer. And today, 30 years later, he is still so athletic, capable of so much work, so young in appearance, it is hard to believe he has lived so long.

As a first step in their progress toward the Power that Knowledge gives, Mr. Dingle wants to send to readers of this notice a 9,000-word treatise. It is free. For your free copy, send your name and address to the Institute of Mentalphysics, 213 South Hobart Blvd., Dept. H-197, Los Angeles 4, Calif. Write promptly.

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as well as those working there. Four years ago she entered a boxcar in pursuit of mice. Hauled to Berlin, N. H., she was recognized there by a brakeman and sent home.

Boots seems to have the proverbial nine lives. Once a snowplow clearing the track buried her under a pile of snow and ice for six days. On another occasion a fast passenger train cut off part of her tail. But *Boots* survived and is doing nicely, thank you. The other day she celebrated her probable tenth birthday, with special rations of liver and cream from Yardmaster Bettis, Art Howland, second-trick op, and Tom Upton, lightning slinger on the graveyard shift. Other rails, who own some of her 150 kittens, paid their respects.

Last June the *Canadian National Magazine* carried an illustrated feature on "Railway Cats," which stated:

"Every railway building of importance on the system has its cat," mainly because human beings "have failed completely to invent a better mouse-trap than a cat. . . . Some of these cats are officially on the payroll for board and lodging. Most, however, subsist by their skill and agility as mice catchers and upon the charity of railway workers. . . .

"The most shamelessly wanton feline is a resident of Winnipeg. Her name is *Mickey*. . . . According to Charles Patton, commissary storekeeper, who, for the past nine years, has been fated to occupy the same premises as *Mickey*, her amorous adventures have added at least 125 kittens to the animal kingdom."

This is quite a record, but *Boots* has eclipsed it by a wide margin. The author goes on to state that *Mickey* is not only an efficient mouser but trains her daughters to follow in her paw-steps.

"For an expenditure of a few cents per day for milk, *Mickey* has saved the company thousands of dollars from damage by mice.

"At the Mountain Street depot of the Canadian National Express in Montreal dwells *Jenny*. She resides in luxurious splendor, spoiled by the boys who toss her delicacies from their lunch boxes."

At Vancouver, B.C., you can find *Fanny*, an "employe" of the Canadian National express department. *Fanny* likes to hitch-hike on express platform trucks, but only when a friend is driving. Her routine includes hanging around the dining-cars of the two

trains awaiting departure to the East each day between 5 and 6 p.m. and she never fails to get handouts of food. One day *Fanny* was missing. Railwaymen far and wide searched for her. Jack Perry, traffic supervisor, found *Fanny* at Chilliwack, B.C.—or thought he did—and brought her back home, only to discover that the real *Fanny* had already returned to her old haunts. There is still some mystery as to whose cat Jack picked up.

* * *

"UPON arriving in Canada from England," writes J. Croft Howard, J. C., 1268959, MPO 304, RCAF, Ottawa, Canada, "I looked over the news-stands to find what railway publications were available and pounced upon a copy of *Railroad Magazine*, which I must say I like immensely. Your method of printing the news of many localities and the various branches of railway service is excellent, while your illustrations are first class."

Croft tells us that before joining the Royal Air Force in 1940 he was in the signal and telegraph department of the LMS.

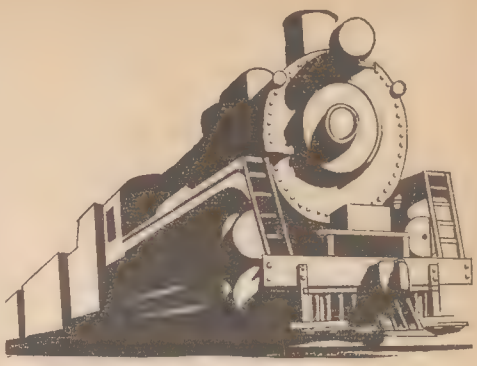
* * *

LOCOS IN ENGLAND. Several readers have written to Arthur J. Richards, 21 Briarfield Road, Tyseley, Birmingham, England, requesting particulars of the new American 2-8-0 Austerity freight engines, class S-160, now at work in his country. Arthur says these engines were built by Baldwin, Alco and Lima, are now bearing road numbers 1601 to 2499 inclusive, and are running on the four British railway systems, but mostly on the Great Western.

* * *

STRANGEST railway crossing accident that has ever come to the attention of Frank Lisowek, 1729 Elsmere Ave., Windsor, Ont., Canada, occurred last fall near Blenheim, Ont., on the Pere Marquette. As Frank relates it:

"A farmer's young son approached a level crossing in a light pick-up truck and apparently decided he could beat a northbound freight that was coming down the track at his left, and he kept on going. But as he looked to the right he saw a speeding passenger train even closer, so he decided to play



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Railroad Panorama—By A. C. Kalmbach, editor of Trains Magazine. 21 of the most interesting chapters from modern railroading and from railroad history, colorfully and accurately told. 224 pages of text, 32 pages of excellent photos. $2.75.

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Westbound Freight—By Kent Day Coes. A watercolor painting of same size as above, shows the caboose end of a fast freight going around a curve. Lots of action, beautiful highlight treatment of the colors. $1.

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safe. He applied his brakes, with the intention of backing up off the crossing.

"Before he could start his motor to reverse the truck, the express train tore into the stalled vehicle, completely shearing off its engine and front part, but leaving the youth unhurt in the undamaged cab of his truck. At that moment the fast freight was almost upon him, coming from the opposite direction, so the driver made a quick belly-flop onto the hard ballast between the tracks. Just as he did so, the freight demolished the rear part of his truck. Even though the youth escaped with his life, it is not likely that he'll ever again try to race a railroad train."

* * *

FINALLY, we come to the results of our monthly "straw vote." As you know, readers indicate which stories, articles, departments and photos they like best. Some clip the Reader's Choice coupon *(page 145)*; others writes their choice on cards or letters. The idea is to assist the editorial crew in assembling material for future issues. Here is the popularity list for January, lined up according to the number of votes received:

1. True Tales of the Rails
2. Burlington Hill, *Samples*
3. The G.Y.M., *"Haywire Mac"*
4. Cajon Pass, *Sullivan*
5. Light of the Lantern
6. The Hobo Local, *Funkhouser*
7. On the Spot
8. Electric Lines, *Maguire*
9. Index for 1943
10. New York Locomotive Works
11. Along the Iron Pike, *Easley*
12. Locomotive of the Month
13. Railroad Camera Club
14. Model Trading Post

A tally of reader votes shows that January's most popular photos were Herbert Sullivan's views of Cajon Pass, followed by pictures of the Pacific Electric and the Monson.

PHOTO in Jan. issue, page 122, was taken July 4, 1893, and shows engine No. 12 of Pittsburgh & Connellsville (now B&O), built 1872 by Grant Loco. Works, we learn from Chas. B. Chaney, of the Railway & Locomotive Historical Society, Inc.

PRIZES for the best essays on plans for meeting post-war transport competition have been awarded by the Railroadians of America to the following: Peter Stewart, U.S. Army, Dallas, Texas; Wm. C. Kessel, Buffalo, N. Y.; S/Sgt. F. H. Stevenson, U.S. Army, Champaign, Ill.; Ralph W. Randall, San Jose, Calif.; Geo. T. Bevan, Erie, Pa.; Henry D. Rennwald, Chicago; Wm. B. Belden, Shaker Hts., O.; Philip Goldman, Los Angeles; F. C. Libutzke, Hartford, Conn.

Railroad Camera Club

ITEMS in this section are published free, in good faith, but without guarantee. Write on a separate sheet or card containing name and address. Do not bury your *Switch List* entry in a letter dealing with other subjects.

Write very plainly. We are not responsible for errors caused by readers' handwriting that is hard for us to read.

Redball handling is given to each item we get the first six days of each month, if accompanied by a Reader's Choice coupon (clipped from page 145 or home-made).

Use these abbreviations: *cond.*, condition; *ea.*, each; *elec.*, electric; *eng.*, engine; *env.*, envelope; *esp.*, especially; *incl.*, including; *exc.*, except; *info.*, information; *mag.*, magazine; *n.g.*, narrow-gage; *negs.*, negatives; *pix.*, photos; *p.c.*, postcard; *pref.*, preferably; *st.*, street; *tr.*, train; *trfs.*, transfers.

The term *tts.* refers to public timetables—unless preceded by *emp.* (employes).

Use these photo sizes: 127—1⅝x2½ inches; 117—2¼x2¼; 130—2⅞x4⅞; 118 or 124—3¼x4¼; 122 or pc.—3½x5½; 116—2½x4¼; 616 same as 116 on thin spool; 120—2¼x3¼.

(R) indicates desire to buy, sell or swap back issues of *Railroad Magazine*. (Specify condition of all magazines.)

(*) indicates juicefan appeal.

When writing to anyone listed here, enclose a stamped env. for reply. If you do not get an answer, it may be because the man was called for military service.

The Switch List

JOHN S. AARDEMA, 166 Water St., Paterson 2, N. J., will buy RF&P renumbered loco list, pix of Vgn. steam locos 100-104, 300-307, 400-405; Deepwater 30; Tidewater or Deepw. 2-6; Clinchf. 500-515; pref. 3x8 or 5x7. Write first.

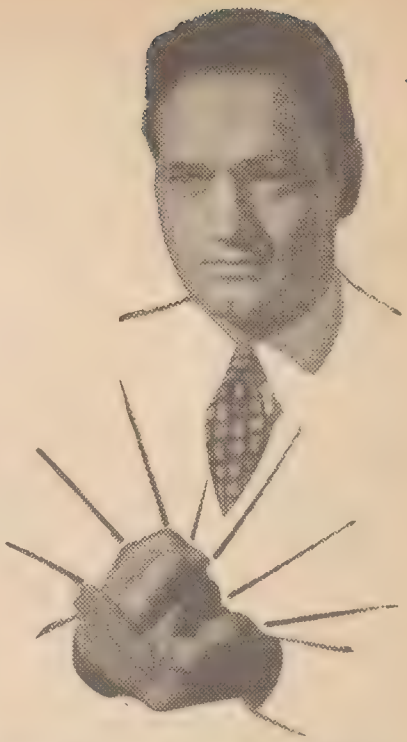
(*)J. ADAMS, 428 Semcoe St., Oshawa, Ont., Canada, has good negs of NSC&T & L&PS to trade for negs of other Canadian elec. lines or GTW or CPR.

(*)DICK ANDREWS, 14569 Asbury Park, Detroit 27, Mich., collects transfers of old st. rys. Juice fans in Detroit and Canada write.

(*)PETER ASCHER, 131 Chestnut St., Garden City, N. Y., will sell or trade many diff. pix of 20 Eastern trolley lines.

(R)GEORGE L. BARRETT, 136 Westview Ave., Syracuse 8, N. Y., will pay cash for double eight movie projector. Also wants '29 to '32 issues of *Railroad Magazine*.

LEE BEAUJON, Canaan, Conn. will trade old copies of Scientific American, some dating as far back as 1875, tts. and Moody's railroad *Manuals* for tickets, pix and tts. of Central New England RR.



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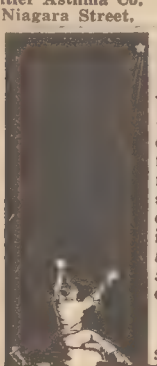
Frontier Asthma Co. 462 Niagara Street, 296-M Frontier Bldg. Buffalo. New York



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IS THERE a strange, ethereal mental cord that binds the consciousness of those departed from this world with those who remain? Is psychic phenomena a farce or fact? Let the Rosicrucians (not a religious organization), reveal the *satisfying truths* about these *mysteries of self* to you. Write for *free* introductory Sealed Book. Address:

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SAYMAN SALVE

(*)GEORGE BECKER, 135 Fire Island Ave., Babylon, N. Y., has negs. to trade for pix of trolley cars and railways.

(*)JACK BEERS, 723 King St., Stratford, Conn., has 116 size pix of Conn. Co. to trade for cars of other lines. Send stamp for list.

(R)OSCAR BESSIO, 436 Mellon St., S.E. Washington 20, D.C., will sell 85 copies of *Railroad Magazine*, good cond., from Dec. '35 on for $5 plus freight or any 10 for $1, plus postage.

RAYMOND H. BOHALL, R.R. 1, Columbus, Ind., wants to contact rails in SW.

L. J. BOUDREAU, CNR agent, Cross Point, Que., Canada, wants New Eng. emp. tts.

WILL A. BROCK, 5 Franklin St., Pittsfield, N.H., will buy *Off. Guide Book* of B&M. State price, cond.

NICHOLAS P. BROWN, 1815 N. Charles St., Baltimore 1, Md., will buy emp. tts, or tr. orders from all divs. of Pennsy. Write first.

(R)MALCOLM F. BUSTIN, 23 E. Commonwealth Rd., Cochituate, Mass., will trade complete file of '32 *Railroad Magazine* and comp. Vol. 1 of *Model Railroader*, good cond., for old auto mags., catalogs, books, pix.

(R)SHELDON CARL, RR 1, Port Robinson, Ont., Canada, wants *Railroad Magazine*, good cond., for '40, '41, '42. State price. Will buy size 116 pix of CNR, CPR and TH&B. Answers all mail.

JIM CARPENTER, 4615 MacArthur Blvd., Oakland 2, Calif., offers list and sample of over 300 Calif. pix, size 116 for 20c.

(R)JAMES M. CLAPPER, 418 W. Tuscarawas St., Canton, O., will sell 56 copies of *Railroad Magazine*, good cond. from Feb. '38 to Sept. '42, for $4 and will pay the transportation charges anywhere in the U. S.

J. CONNELLY, 25 Ellsworth St., Portland 4, Me., will buy size 116 negs and will trade pix. What have you?

(*)WILLIAM DIESING, Jr., St. Louis Div., E.R.A., Photo Dept. 3503 Wisconsin Ave., St. Louis 18, Mo., will sell pix of St. Louis st. car eqpmt. at 15c ea., pix of Alton, Granite City and St. Louis at 5c each.

NORMAN DOUGLAS, Box 3352, Brentwood, Calif., will sell *Official Guide* Mar. '38, April '41, March '43 at $1.25 ea. Has over 1500 SP tr. orders to sell at 10c a doz. or to trade for orders from all other roads.

(R)F. S. EATON, Forest Rd., Northford, Conn., will sell *Railroad Magazine:* Sept. '36, May, July and Aug. '40, Aug. '41, Mar. '42. Also *Model Railroader, Model Craftsman, historical society rr. Bulletins;* wants to buy *Trains*. Write first.

(R)HENRY EVANS, 13 Demars St., Maynard, Mass., will pay good price for *Railroad Magazine* of April '33 containing roster of B&M engines. Write first.

(R)J. J. FLUHR, 266 Orchard St., Elizabeth 3, N. J., will sell *Railroad Magazine*, good cond.: June '35, Dec. '36, April and Aug. '37 for 20c ea. postpaid. Will buy Trains, '41 and '42. Write first.

R. J. FOSTER, P. O. Box 375, East St. Louis, Ill. will trade p.c. negs of locos of steam roads. Wants NP, GN, Milwaukee, C&NW, UP, NYNH&H, NYC, B&A, B&M, Penn, B&O ACL.

ED. J. FREY Cragsmoor, N. Y., has popular magazines to trade for 116 size negs of locos of any road. Will allow 15c ea. for negs. Asks one half the original price for mags and you pay postage. Send stamp for list.

(R)BOB GAULKE, 1206 Goold St., Racine, Wis., will buy Oct. '32 and Nov. '39 *Railroad Magazine* and Dec. '40, Jan., Feb., March, Sept., '41 *Trains*.

(R)EARL GAZAY, 1014 B. Pine St., Seattle 1, Wash., will buy *Railroad Men's Magazine* before '29.

(R)R. WESTON GISH, 2 Silver Lane, Kirkwood 22, Mo., wants issues of *Railroad Magazine* '29 through '33, good cond., *Baldwin Locomotives, SP Bulletin* and history of MoP. Will pay cash or trade size 116 pix of MoP locos.

L. GRIER, 123 Morningside Drive, Elmira, N. Y., trades Elgin BW Raymond RR watch and consistory ring for reflex, miniature or Speed Graphic camera.

S. P. GUTHRIE, Box 382, Cold Spring, Ky., will pay $5 for *Official Guide* between '10 and '12, and $2.50 for copy between '18- '20. Wants *Trains* '43, and pix and negs. of aband. roads. Can copy pix if clear and sharp, returning your pix undamaged, if you do not care to sell. All letters ans.

R. G. HARRIS, Asbestos, Que., Canada will buy recent tts. Write first.

ROBERT E. HEGLUND, 1213 Grant St., Waukesha, Wisc., will buy pix of Milw. and C&NW Diesels.

RAILROAD CAMERA CLUB is open to all who collect railroad or streetcar pictures or other railroadiana such as timetables, passes, train orders, trolley transfers, magazines, books, etc. There are no fees, no dues.

Membership card and pin are given free to anyone sending us the latest Reader's Choice coupon and a self-addressed stamped envelope. If you don't want to clip page 145 make your own coupon. Address *Railroad Magazine*, 205 E. 42nd Street, New York City 17. Tell us what you want or what you offer; otherwise your name will not be printed here.

J. C. HENDERSON, P. O. Box 476, San Francisco 1, Calif., would like to buy pix issued by George H. Daniels, Gen. Pass. Agent of the NYC, 30x36 of the Empire State Express, hauled by engine 999.

AL HICKERSON, 2305 East 15th St., Kansas City, Mo., will sell or trade new supply of pix of KC pass. and work cars. Also complete set of KC transfers, transit map, etc. Write.

(R)MIKE HICKEY, 131 Bail Road, Mt. Lakes, N. J., wants pix of DL&W locos 1900 period, also *Railroad Magazine* for Aug. '33, good cond.

G. E. HINDS, 22900 Goddard Rd., Inkster, Mich., has tts. and tr. orders to trade. Write for list.

M. T. HOVDET, 4613 N. 6th St., Milwaukee 12, Wis., wants to buy late engine rosters of UP, CRI&P, and IC.

(R)T. M. HOWARD, 315 W. 33rd St., N. Y. City, will sell June '42, Jan. '42, Nov. '42, Dec. '40, '41, Sept. '40, Jan. '40, *Railroad Magazine* for $1.

H. H. INSLEY, 6710 Meadow Lane, Chevy Chase 15, Md. wants pix of LV, CNJ and D&LW, size 120.

BILL JACKMAN, 5762 Vicente, Oakland 9, Calif., wants plans, pix or blueprints of the n.g. Boston Revere Beach & Lynn coaches, electrified in 1928.

ALYMER JONES, 7 Fall St., Malden, Mass., will pay fair price for B&M tts. at least 15 years old.

LOUIS KREWER, Demarest, N. J., has *Off. Guides* to sell. Write for info.

(*)RONALD KUPINSKY, 2707 Morris Ave., New York 58, N. Y., trades transfers, steam tts. for elec. tts., maps, transfers and elec. pix.

C. S. LAKE, Ass't to Pres., Chesapeake & Ohio, Richmond, Va., is assembling records of early C&O history, data, incl. tts., waybills, true tales, pix, old newspaper and mag. clippings, etc.; would appreciate any donation.

FRANK LISOWEK 1729 Elsmere Ave., Windsor, Ont., Canada, will trade set of 6 pix of Essex Terminal engines for other small industrial or common carrier lines. Must be 116 size clearly printed.

(*)CLARENCE M. KEMRER, Sect'y National Railway Historical Society, Inc., R.F.D. No. 6, Lancaster, Pa., wants *Elec. Ry. Jr.*, Jan. 3rd, 17th, June 6th and 14th of 1914. State price.

(R)R. W. MILNOR, 4320 Berkshire Ave., Los Angeles, Calif., will sell about 100 issues of *Railroad Magazine* and *Railroad Man's Magazine*, good cond., from '34 to date. Make offer for the lot.

EDWARD MAHONEY, Room 1425, 114 Sansome St., San Francisco 4, Calif., will buy *Official Guide* for July 1917 or earlier, or any tts. or literature pertaining to the Colorado Midland Railroad.

CARL MEHN, R.R. 2, Elpaso, Ill., has 1909 CB&Q tts. for sale.

(*)D. MORRISON, 209 Oxford St., Winnipeg, Canada, has pix of the Winnipeg Elec. Co. st. cars for sale or trade. Send 4c stamp for list.

WILLIAM A. NORGREN, 5603 -35th Place, Hyattsville, Md., will buy *Trains*, Dec. '40, Jan., Feb., Sept., '41, good cond. and Vol. 1.

HENRY R. O'CONNOR, 1153 Guerrero St., San Francisco, Calif., will buy negs of far western roads, Old Mexico, South America. Wants prints of Colorado Midland. Write for list.

(*)ROB'T PALMER, South 1123 Lacey, Spokane, Wash., wants to hear from fans interested in old time Spokane elec. lines.

JAMES E. PLATT, 99 Mountain Park Avenue, Hamil-

PAYS accumulated **ACCIDENT BENEFITS** for Accidental Loss of Life, Limb, or Sight up to **$6000.00**

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Helps Flush Kidneys

ton, Ont., Canada, has 616 size pix to trade or sell at 6c ea. Write for list.

HARRY PORTER, 301 Winnebago St., Rockford, Ill., trades transportation tokens.

J. W. SHAFER, 700 Cottage St., Waterloo, Iowa, wants circus letterheads, couriers, programs, route cards, rr. pix, shotguns, shells, thresher catalogs, etc.

MELVIN SHRADER, Box 143, Lind, Wash., wants to correspond with railfans, esp. in West and N.W.

Sgt. FRANK SMARZ, 36608420, Headquarters Battery, Ft. Monroe, Va., offers 616 size pix in trade for Army shoulder patch insignias. Soldiers please write.

SPENCER A. STINE, P. O. Box 5353, Seat Pleasant, Md., sells pix of Ringling Bros. and McCoy's circus trains. 2 pix for one 25c defense stamp.

(R)J. M. STREET, USNATB, Solomon's Branch, Washington, D. C., wants B&M material of all sorts, except pix. Will trade or sell '41, '42 and '43 *Railroad Magazine* for 15c ea.

(*)LEONARD TRIPP, Sp T 2/c, USNTS Unit H., CPO 2, Sampson, N. Y., and Forbes Allen of Rochester, N. Y., are compiling an illustrated article on the Lima & Honeyoe Falls Trolley line. Any material welcomed.

TRANSPORTATION CLUB OF LONG ISLAND, 957 E. 49th St., Brooklyn, N. Y., will trade pix. Write first.

Pfc. VICTOR WAGNER, 14th Tow Target Squadron AAF, Camp Davis, N. C., has size 616 pix of the P&N and others to trade or sell at 5c ea. Wants any size pix of the Indiana Railroad.

E. A. WEBB, 1705 Woodlawn Avenue, Logansport, Indiana, has new list of more than 60 roads incl. NYC lines, PRR, MONON, NKP, GTW, B&O, etc. Send 10c in coin for sample 116 size print and list.

(*)W. G. WEIBLE, 9641 Sorrento, Detroit 27, Mich., trades transfers, tts, route maps, data, etc.

JOHN WEIGHTMAN 1316 Que St., Sacramento 14, Calif., has a few pix of Key System Mole taken '03, 15c ea., size 124.

BOB WERT, Meridan, N. H., offers size 127, or 116 pix to sell or trade. Also negs., any size.

(*)ROBT. WIETZTSE, 2325 W. North Ave., Milwaukee, Wis.. will trade transfers of Milwaukee for those of any other city, good cond. Send stamp.

(*)Pfc. FRED WILLIAMS, HQ Detachment, 76th Wing, Seymour, Johnson Field, N. C., wants to buy pix of any size of CM&NS, Mil. Elec. and Shipyard Ry.

BERT E. WOODWARD, 512½ West 21st St., Cheyenne, Wyo., wants any size pix of UP locos.

(R)CLIFFORD XAMMEERER, 219-310 2nd Ave., Queens Village, New York, will trade large stamp collection, 400,300 varieties, for 200 back numbers of *Railroad Magazine*.

(R)F. W. ZIRBEL, 1902 4th St., Coeur D'Alene, Idaho, offers copies of *Railroad Magazine* from Jan. 1939 through Dec. '43, 25c ea.; not less than one year's issues sold.

RONALD ZUALDLIN, 7227 West 24th Ave., Gary, Indiana, would like to correspond with Indiana fans. Wants motor car pix, streamline pix, steam and diesel, or pix of Wabash banner.

MORE POWER TO STEAM. Lima Locomotive Works has been assigned rights to patent No. 2,318,040, covering a recent invention which promises new life for the iron horse. This design aims to give engines on rails the marked economic and operating advantages of more efficient and higher steam pressures now available to ships and some stationary installations. According to Dr. Frank Thone, Science Service staff writer, it employs horizontal watertube boiler construction instead of the old, conventional, flue-boiler. Numerous tubes suspended around a large fire space within the engine shell constitute its chief protection against high firebox temperatures. Steam is stored in eight or more vertical drums ranged in two rows down the sides of the locomotive.

Model Trading Post

LISTINGS here are free. Keep 'em short. Because of time required to edit, print and distribute *Railroad Magazine,* all departmental material should be sent to the editor seven weeks before publication date. Every *Trading Post* entry must be accompanied by the latest Reader's Choice coupon, clipped from page 145 or home-made.

* * *

16th ANNUAL SHOW of New York Society of Model Engineers will be held Feb. 11-22 inclusive in Newsweek Bldg., just off Times Square, 152 W. 42nd St., N. Y. City; 5:30 p. m. to 10 p.m. weekdays; 1 p. m. to 10 p. m. Saturdays, Sundays and holidays.

* * *

Pfc. CLYDE M. ALDRIDGE, Corps Military Police, Camp Roberts, Calif., wants live steam models 0 gage Bassett -L, Bing, or Maerklin. Will pay cash.

B. T. BACKSTEIN, 1334 N. Railroad Ave., Decatur, Ill., wants ¼ in. scale model loco, outside third rail and ¼ in. scale frt. and pass. car trucks and eqpmt. Will pay cash or trade new De Luxe Dooling Bros. Midget race car rear drive, comp. with almost new Dennymite Motor.

E. L. BLAIR, 1534 Silver Springs Blvd., Ocala, Fla., wishes to sell one 700 E. Lionel Hudson, ten frt. cars and caboose, 200 or more ft. of ¼ and 3/16 steel rail, lots of other material, everything to build a model pike and start operating. All good cond.

FORSYTH BROWN, Jr., 815 Pinkney Ave., Leesville, La., wants Scale-Craft or Walthers O gave two rail A.C. or D.C. loco, good cond. Must be built-up.

EDWARD E. DAVIS, 721 E. Mallory Ave., Memphis 9, Tenn., will trade or buy any 0 gage track, switches. (072 R L) box car, tank or other cars. All must be eight wheel trucks.

HARRY GRAFF, 403 West End Ave., Elizabeth, 2, N. J., must sell: Walthers 0 gage switch engine 3 motor, $25, Walthers MU chassis 2 motor, $10.; both three rail. Will consider trade for Lionel or other 00 two rail.

GLEN H. HARRISON, M. D., 307 Washington St., Waukegan, Ill,. offers cash for any old style toy locos, cars, trolleys, German and U. S. makes, any cond. Also wants German steam engines, autos, boats; Lionel, Ives A. F. std. gage sets and accessories; new style Lionel or A. F. 6 wheel drive locos, cars.

BRUCE M. HATCHER, 2701 Seminole Ave., Ashland, Ky., will trade the following HO eqpmt: 2 Varney Pacifics, one Dockside switcher, 7 Varney passenger, Pullman and baggage cars, 25 Varney, Mantua, Megow, Walthers and Ideal frt. cars. Will sell or trade for HO Atlantic, 0-6-0 switcher or any loco capable of taking short radius curves. Must be in good oper. cond. Also wants portable HO layout.

FRED HESS, 8121 W. 3rd St., Los Angeles, Calif., wants HO eqpmt. Will trade back issues of *Railroad Magazine* to '37, *Model Craftsman,* or will pay cash.

RICHARD S. HOLT, 59 Gilbert Rd., Belmont, Mass., wants to buy a Mantua, 0-4-0 Camelback, HO M.U. motor units and HO track and switches.

WALTER E. HOXIE, 150 Stewart St., Providence, R. I., wants 0 gage tinplate, outfit, supplies. Also p.c. pix showing trolleys or RR scenes.

HOMER HURD, Jr., 2230 Dartmouth Avenue, Bessemer, Ala., needs two Walthers, No. 6, skeleton type switch frogs, prefer brass and two number 4 frogs. State price.

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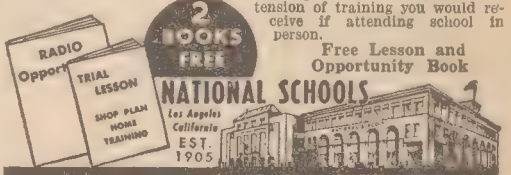

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FRANCIS KARN, 2713 South 13th St., St. Louis 18, Mo., wants A. F. '39 0 gage loco, long pass., etc., 0-6-0 switcher A. F., also Lionel scale frt. cars 700 series, and Hudson loco switcher and streamliner. Has 24 volume encyclopedia to trade.

CHARLES H. KASHINCKIE, 4335 So. Warner St., Tacoma 9, Wash., wants to buy A. F. locos, frt. cars, pass. cars, 3/16 in. scale 0 gage with auto. coupling, good cond.

LUKE H. KEARNS, 22 Mineral St., Springfield, Ky., wants A. F. 3/16 in. trucks comp. with auto couplers. Answers all mail.

J. S. KUSTER, 3 E. Stevens St., Newark, O., offers $2 ea. for tinplate catalogs before '35. Wants 431 Lionel diner and 116 Ives station, has 2 Lionel 23 bumpers for sale.

DAVID KESLER, 1305 E. 9th, Winfield, Kansas; wants all st. gage eqpmt. and accessories of any gage. Also catalogs up to '41.

W. E. KRAMER, M. D., 39 W. Main St., Chillicothe, O., wants info., catalogues, or eqpmt. of Carlisle & Finch Co. of Cincinnati, O., who was in business about 25 or 30 years ago. Will sell present eqpmt. or buy.

ADOLPHE LESESNE, 835 Rainier St., Vallejo, Calif., will sell or trade scale and tinplate eqpmt. Send stamp for list.

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R. C. MCLAREN, 1035 Mapleton Ave., Oak Park, Ill., will sell Lionel 1121 switches, 47 crossing gate, 45 Gateman, 154 signal, 2600 series cars, A. F. "Akoostikin" station, unloading crane, etc. All like new. Trade for Lionel No. 2900 series frt. cars. 3c stamp for list.

FRANK McCLELLAN, 7733 Sunnyside Ave., Seattle, Wash., will buy 0 gage st. cars and inter. Will trade Lionel locos, cars or track.

GEORGE MONSON, 14 Fond St., Deposit, N. Y., wants 200 feet of Buddy L, ¾ in. scale rail, new or second hand. Also bound volumes of *Modelmaker, Shop, Shed and Road* by L.B.S.C.

VIC NEAL, 111 N. Brooklyn Ave., Wellsville, N. Y., wants ⅛ in. or 1/10 in. steel or brass HO rail, K&D motors, worm gears, driver castings or what have you. Will pay cash or do any model assembly, insulating, machine or repair work in exchange, or will trade loco or train pix.

T. J. PELLETTER, R. 3, Box 39, Palouse, Wash., wants Lionel cattle cars 806 and 813. Also UP and Milw. train pix.

ALAN RICK, 656 Main St., Winona, Minn., will buy A. F. auto. coupler trucks, good cond.

FRED M. RUST, 213 Buffalo St., Fulton, N. Y., wants pix of n.g. contractor's 0-4-0 saddle tanks and 4-wheeled dump cars as used in constructing N. Y. state barge canal or other excavation projects.

ART STENSVAD, 811 E. 3rd, North Platte, Nebr., has once used Lionel two rail 00 gage Hudson with 1 oil car, 1 box car, 1 caboose to trade for remote control A. F. 4-8-4 or 4-6-4 with cars and track. Must be auto. coupler type. Lionel set is equipped with whistler. Write via Airmail.

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O. P. STUFFLEBEAM, 833 Derby Lane, Green Bay, Wis., offers cash for old Lionel catalog, std. gage eqpmt. of '10-'15 period, esp. old Lionel American and elec. type locos, frt. cars, track and pass. coaches.

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S. E. TRUIST 85 Scott St., San Francisco, will sell antique std. model road; caboose, boxcar, gondola, oil car tender and elec. switch engine, 8 secs. of curved track, 4 secs. str. track, 90 deg. crossover. List for 3c.

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